

Central & Eastern Berkshire Authorities

Joint Minerals & Waste Plan

Minerals: Background Study

July 2020

(Proposed Submission Plan)



www.rbwm.gov.uk



**WOKINGHAM
BOROUGH COUNCIL**

Table of Contents

Executive summary	1
1. Introduction	7
Study preparation	8
Study structure	8
Minerals data.....	9
2. Policy context.....	10
National policy.....	10
Regional policy.....	13
Local policy	13
3. Minerals development	15
The strategic and economic importance of minerals development.....	15
Ensuring resource efficiency and sustainable development.....	15
Supporting employment.....	16
Opportunities and benefits from minerals development	16
Co-location of minerals developments	16
Restoration and aftercare of mineral workings	16
Mineral development constraints and planning issues	17
Geology	18
Potential impact on nature, landscape and other designations.....	18
Potential impact on water resources and flooding.....	18
Potential impact on land, soils and water	18
Potential impact on communities	18
Transporting aggregates.....	20
Public safety	21
Viability of mineral deposits.....	21
Safeguarding and sterilisation of mineral resources.....	21
Prior extraction	22
Potential impact on the climate	22
4. Mineral issues in Central and Eastern Berkshire	24
Central and Eastern Berkshire Geology.....	24
Mineral extraction in Central and Eastern Berkshire	25
Mineral development considerations	26
Designated areas.....	26
Water environment and soils.....	27

Impacts on communities	28
Transport	28
Safeguarding	32
5 Planning for minerals in Central and Eastern Berkshire	33
Aggregates	33
Aggregate Supply	34
Recycled and Secondary Aggregates	36
Crushed rock	41
Marine-won sand and gravel	43
Land-won sand and gravel	44
Imports	50
Exports	50
Identifying future demand	51
Past Sales	52
Non-Aggregates	63
Clay	67
Chalk	67
Oil and Gas	68
Coal	70
Appendix 1 – Saved Policies	71
Appendix 2 - Future Aggregate demand	81
Appendix 3 – Soft sand demand Assessment (2020 Update)	88

Figures

Figure 1: Administrative areas of Central & Eastern Berkshire Authorities	7
Figure 2: Geological map of Central and Eastern Berkshire	24
Figure 3: Green Belt designation in Central and Eastern Berkshire	27
Figure 4: Strategic transport routes in Central and Eastern Berkshire	29
Figure 5: Aggregates sales in South East England 2009-2018	36
Figure 6: Location of recycled aggregate sites in 2018	37
Figure 7: Active sand and gravel sites in Central and Eastern Berkshire in 2018	46
Figure 8: Bedrock geology of Central and Eastern Berkshire	53
Figure 9: Sources of soft sand supply to Central and Eastern Berkshire	56
Figure 10: Predicted depletion rate of sand and gravel in Central & Eastern Berkshire	63
Figure 11: NPPF compliant Area of Search	66
Figure 12: Coal resources in Central and Eastern Berkshire	70

Tables

Table 5.1: Total sales, exports and imports and consumption of Primary Aggregate in Berkshire, 2009 and 2014.....	34
Table 5.2: Recycled aggregate capacity in 2018.....	38
Table 5.3: Sales of recycled and secondary aggregate in South East and Berkshire (thousand tonnes).....	39
Table 5.4: Levels of C&D waste assumed to be exported from Central and Eastern Berkshire.....	41
Table 5.5: Sources of crushed rock consumed in Berkshire (thousand tonnes).....	42
Table 5.6: Sales from Berkshire and Hampshire Rail Depots (million tonnes).....	44
Table 5.7: Sources of marine sand and gravel consumed in Berkshire.....	47
Table 5.8: Sand and gravel quarries in Central and Eastern Berkshire.....	49
Table 5.9: Sharp sand and gravel and soft sand resource assessment in Central and Eastern Berkshire (million tonnes).....	49
Table 5.10: Estimated yield of remaining Preferred Areas (tonnes).....	50
Table 5.11: Sources of sand and gravel consumed in Berkshire in 2009 and 2014 (thousand tonnes).....	51
Table 5.12: Destinations of Berkshire's sand and gravel in 2009 and 2014 (thousand tonnes).....	52
Table 5.13: Comparison of Berkshire's Total Sales of Sand and Gravel and West Berkshire's Output (thousand tonnes).....	54
Table 5.14: Estimated soft sand demand for Central and Eastern Berkshire up to 2036.....	58
Table 5.15: Central and Eastern Berkshire sand and gravel landbank.....	61

Prepared by Hampshire Services
Hampshire County Council
www.hants.gov.uk/sharedexpertise



© Crown copyright and database rights 2019
Ordnance Survey 100018817
Derived from 1:50000 scale BGS Digital
Data under
Licence 2011/049F, British Geological
Survey ©NERC

Executive summary

Introduction

Bracknell Forest Council, Reading Borough Council, the Royal Borough of Windsor & Maidenhead and Wokingham Borough Council (collectively referred to as the 'Central & Eastern Berkshire Authorities') are responsible for the planning of minerals (and waste development) within the respective authority areas. These authorities are working jointly to prepare a Joint Minerals & Waste Plan (JMWP).

The JMWP will indicate what provision of minerals is required, where these may be located; when they are to be provided and how they will be delivered during the Plan period to 2036.

Policy Context

National planning policy for minerals is contained in the National Planning Policy Framework¹ (NPPF) which seeks to ensure that there is an adequate and steady supply of aggregate to provide the infrastructure, buildings and goods that society, industry and the economy needs, but that this provision is made in accordance with the principles of sustainable development.

The Planning Practice Guidance² outlines how aggregate supply is managed nationally through the Managed Aggregate Supply System (MASS) which requires mineral planning authorities to make an appropriate contribution nationally as well as locally whilst controlling environmental damage to an acceptable level.

The currently adopted minerals plan for the Central & Eastern Berkshire Authorities is the Replacement Minerals Local Plan for Berkshire adopted in 1995 and subsequently adopted alterations in 1997 and 2001³. For Central and Eastern Berkshire, the saved policies will be replaced by the JMWP when it is adopted.

¹ National Planning Policy Framework:

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/779764/NPPF_Feb_2019_web.pdf

² Guidance on the planning for mineral extraction in plan making and the application process (Paragraph: 060 Reference ID: 27-060-20140306): www.gov.uk/guidance/minerals

³ Replacement Minerals Local Plan for Berkshire (2001): <https://www.bracknell-forest.gov.uk/sites/default/files/documents/replacement-minerals-local-plan-for-berkshire-2001.pdf>

Minerals development

Minerals are an important component for both national and local economies. Their exploitation can make a significant contribution to economic prosperity and quality of life in areas subject to major growth pressures.

The effective restoration of minerals development is an integral part of all mineral extraction. Minerals development can be restored to meet wider planning objectives

There are a number of different constraints and issues which may impact the location of minerals development in Central and Eastern Berkshire. These include impacts on designations, the water environment, soils and land, local communities, transport, safety and resources.

Minerals issues in Central and Eastern Berkshire

Berkshire's principal geological deposits, in economic terms, are sharp sand and gravel, with additional variable soft sand deposits. The plan area contains no 'hard' rock deposits. Other minerals, such as chalk and clay, have a limited role. **The minerals of more than local significance in Central and Eastern Berkshire are sand and gravel.**

There are a number of designations and planning constraints that will impact the identification and working of minerals in Central and Eastern Berkshire.

Central and Eastern Berkshire is well connected by road and rail and contains some navigational waterways. However, there are no rail depots within the Plan area, and it is assumed that all mineral movements within the Plan area are by road. There is currently no transportation of mineral by waterways in Central and Eastern Berkshire, but this could be a possibility in the future.

The key minerals for Central and Eastern Berkshire and its economy are those most closely linked to the construction industry. Therefore, deposits of sharp sand and gravel and soft sand should be safeguarded.

Planning for minerals in Central and Eastern Berkshire

Aggregates are needed to help provide the infrastructure, buildings and goods that society, industry and the economy needs. The aggregate required can be made up of different sources such as recycled materials, imported mineral products or extracted sand and gravel from either the sea or land.

Planning future aggregate supply

The Aggregate Monitoring (AM) survey undertaken by the British Geological Survey (BGS) shows a trend for a reduction in consumption of land-won sand and gravel as a percentage of total aggregate consumption but an increase in sales. Consumption of marine-won sand and gravel and crushed rock have increased – both of which, in the context of Central and Eastern Berkshire, are imported aggregates.

Recycled and secondary aggregate

It is estimated that recycled aggregate capacity in Central and Eastern Berkshire during 2018 was 279,800 tonnes. However, permanent capacity is estimated at only 40 - 45,000 tonnes. Sales in 2018 were 138,000 tonnes which is the highest recorded figure in the last 5 years.

Crushed rock

Due to the geology of Central and Eastern Berkshire, crushed rock is imported predominately via rail depots in West Berkshire. The most significant supply source of crushed rock is from Somerset which has some 400 million tonnes of approved reserves⁴.

Marine-won sand and gravel

Berkshire's level of imported marine-won sand and gravel represented 5.5% of the total primary aggregate consumed in 2009 and this rose to approximately 8% in 2014. The main sources of which are Greater London and Hampshire.

Land-won sand and gravel

Four quarries had approved reserves in 2018 although one was inactive.

The permitted reserves in Central and Eastern Berkshire at 31 December 2018 were 6,053,000 tonnes⁵.

The Replacement Minerals Local Plan for Berkshire⁶ included Preferred Areas. The total estimated yield of the remaining Preferred Areas (in Central and Eastern Berkshire) is 375,000 tonnes.

⁴ Somerset LAA 2016

⁵ Aggregate Monitoring (AM) 2018 survey results

⁶ Replacement Minerals Local Plan for Berkshire (incorporating the Alterations adopted in December 1997 and May 2001 (joint Strategic Planning Unit): www.bracknell-forest.gov.uk/replacement-minerals-local-plan-for-berkshire-2001.pdf

Aggregate flow to / from Central and Eastern Berkshire

The sources of sand and gravel consumed in Berkshire in 2009 and 2014 were predominately sources from within Berkshire, Hampshire and, more recently in 2014, Wiltshire and Oxfordshire.

Of the aggregates sold in Berkshire in 2009, 61% was consumed in Berkshire with the remainder being exported, principally to destinations in the South East, which are assumed to be transported by road.

Identifying future demand

The 10-year average sales for Central and Eastern Berkshire is 0.62 million tonnes per annum. The three-year average of the sand and gravel sales in Central and Eastern Berkshire is 0.49 Million tonnes per annum.

Construction and economic forecasts both suggest growth and there are already a number of national and local development projects which all indicate an increase in need for construction aggregates. As such, the 10-year average is taken as the 2018 Local Aggregate Assessment (LAA) Rate⁷ as this is considered to better reflect an increase in future demands and incorporates the closures of sites in the plan area.

Soft sand

Soft sand is generally fine-grained sand in which the individual grains are well-rounded, which provides a relatively soft texture and free-flowing nature to the material and is used in products which need to be easily worked, such as mortars and plaster.

Local Aggregate Assessments for Central and Eastern Berkshire note that the soft sand resources in the Plan area are 'generally poor quality'.

Methodologies have been used to determine the potential soft sand demand in Central and Eastern Berkshire during the Plan period. This is estimated at **1.0 million tonnes** (0.065 million tonnes per annum).

In 2018, the South East had a collective reserve of around 24 million tonnes of soft sand which equates to 14 years in landbank⁸.

⁷ Central and Eastern Berkshire: Local Aggregate Assessment 2018:
<http://documents.hants.gov.uk/environment/JCEBLAA2018.pdf>

⁸ South East England Aggregate Working Party – Annual Report 2018 (January 2020).

Soft Sand Study

To gain a better understanding of the soft sand resources, markets, and supply options in Central and Eastern Berkshire, a Soft Sand Study⁹ has been prepared to inform the Joint Minerals & Waste Plan.

Local operators confirmed that the soft sand was of a quality not suitable for investment and that sources of supply came from outside Central and Eastern Berkshire

The Soft Sand Study identified no clear best option amongst the supply options examined, but there are a number of alternative sources which in the absence of local supply in Central and Eastern Berkshire can help to enable a steady and adequate supply of soft sand in the short and longer-term up to 2036.

Landbank

Reserves of sand and gravel in Central and Eastern Berkshire with planning permission for extraction (permitted reserves) at 31st December 2018 were 5,857,000 tonnes (discounting reserves at Star Works Quarry as it is inactive).

Local Aggregate Assessment (LAA) for the period 2018, determined the LAA Rate as 0.628 million tonnes¹⁰. Based on the 2018 LAA rate the landbank for sand and gravel is 9.3 years.

Future provision of sand and gravel

The proposed Plan period is up to 2036. If the LAA rate is projected forward from 2018 to 2036 a total of 11.304 million tonnes of sharp sand and gravel would be required over the course of the Plan. Current permitted reserves for Central and Eastern Berkshire are 5.857 million tonnes (not including Star Works Quarry). This means that there is a total requirement of 5.447 million tonnes of sharp sand and gravel (0.628 million tonnes per annum).

The JMWP includes sand and gravel allocations which total a provision of 0.4 million tonnes. Despite recent permissions there is a shortfall of 2.5 million tonnes in total provision.

As Central and Eastern Berkshire contains sharp sand and gravel resources, an Area of Search has been outlined to demonstrate the potential for provision within the Plan area.

⁹ Soft Sand Study (2020): www.hants.gov.uk/berksconsult

¹⁰ Central and Eastern Berkshire – Local Aggregate Assessment 2018: www.hants.gov.uk/berksconsult

Non-Aggregates

There are no operational claypits permitted to support industrial processes. Due to the lack of current brick and tileworks within Central and Eastern Berkshire, there is no requirement to make 25 years provision of brick-making clay as outlined in the NPPF¹¹.

In recent years, chalk extracted in Central and Eastern Berkshire has only been used in the production of agricultural lime rather than to supply a processing plant. Therefore, there is no requirement to make 15 years provision of chalk (as cement primary) as outlined in the NPPF¹².

There are no known commercial resources of oil and gas in Central and Eastern Berkshire, although viable conventional resources of oil and gas have been identified and are being exploited in neighbouring counties, such as Hampshire.

The coal seam at the western edge of the Plan area is deep underground and not considered to be viable for extraction. The coals are present in a thin gas seam and the coal measures are considered as having little potential for coalbed methane¹³.

¹¹ National Planning Policy Framework (Para. 208): https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/810197/NPPF_Feb_2019_revised.pdf

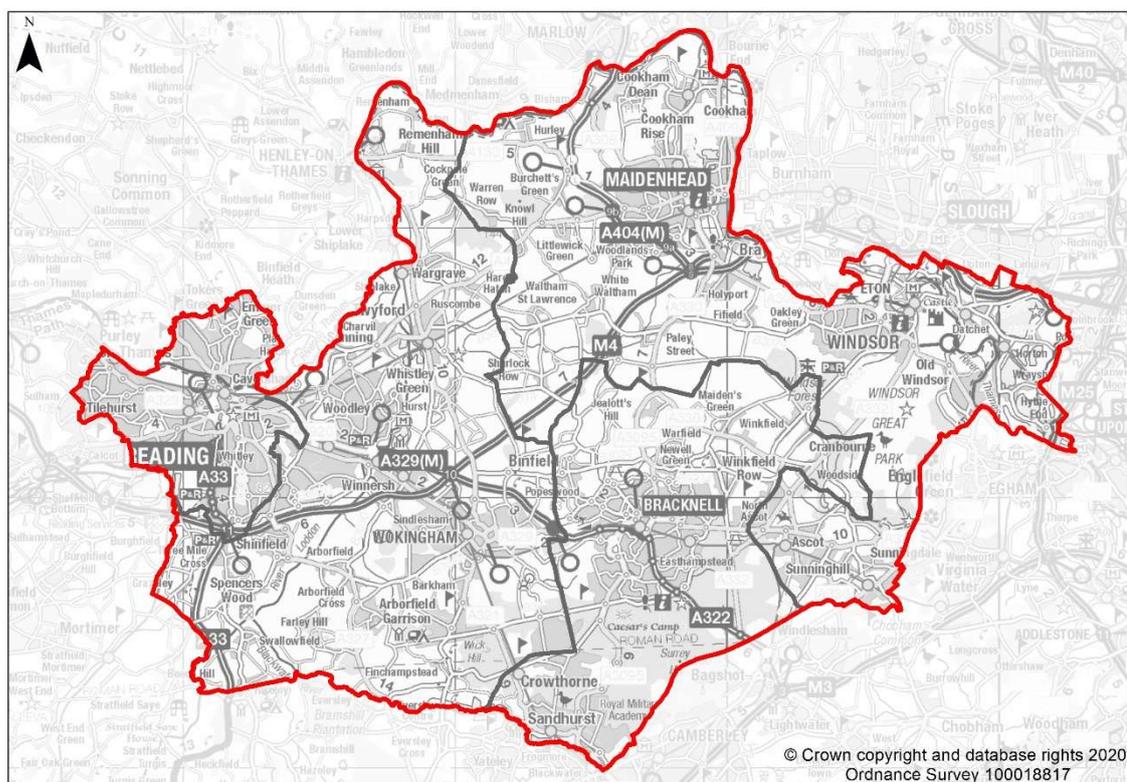
¹² National Planning Policy Framework (Para. 208): https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/810197/NPPF_Feb_2019_revised.pdf

¹³ British Geological Survey – Mineral Resource Information in Support of National, Regional and Local Planning (2003): www.bgs.ac.uk/downloads/start.cfm?id=2589

1. Introduction

1.1 Bracknell Forest Council, Reading Borough Council, the Royal Borough of Windsor & Maidenhead and Wokingham Borough Council (collectively referred to as the 'Central & Eastern Berkshire Authorities') are responsible for the planning of minerals (and waste development) within the respective authority areas. These authorities are working jointly to prepare a Joint Minerals & Waste Plan (JMWP). The following map highlights the administrative area of the JMWP.

Figure 1: Administrative area of Central & Eastern Berkshire Authorities



- 1.2 The Central & Eastern Berkshire Authorities are required to provide a plan to ensure an adequate and steady supply of minerals. An important aspect of this role is to balance the need for minerals, such as sand and gravel, against environmental constraints and ensure the minimum impact on the Central and Eastern Berkshire environment. Potential impacts on local communities also need to be balanced. Engagement with communities, as well as the minerals industry, is a major part of ensuring realistic delivery of minerals through the JMWP.
- 1.3 The JMWP will indicate what provision of minerals is required, where these may be located; when they are to be provided and how they will be delivered during the Plan period to 2036.

Study preparation

- 1.4 The information, data and analysis contained within this Study is required to inform the preparation of the JMWP. Therefore, this Study attempts to answer the following key questions:
- Why does Central and Eastern Berkshire need to plan for minerals?
 - What minerals resources are in Central and Eastern Berkshire?
 - What are the current reserves of minerals in Central and Eastern Berkshire?
 - What mineral supply infrastructure is available to facilitate supply e.g. rail depots, access to neighbouring facilities, recycled aggregate capacity?
 - What are the main constraints and opportunities associated with minerals development in Central and Eastern Berkshire?
 - How much additional mineral resource and infrastructure may be required to meet the needs of Central and Eastern Berkshire?

Study structure

- 1.5 Following this Introduction (1), this Study is structured as follows:
2. *Policy context* – provides some contextual information about the national, regional, and local policies which influence planning for minerals in Central & Eastern Berkshire.
 3. *Minerals development*– sets out what the main constraints and issues are associated within minerals development; what minerals development is important; and what opportunities and benefits can be associated with minerals development.
 4. *Mineral issues in Central and Eastern Berkshire* – sets out the issues affecting minerals development in Central and Eastern Berkshire.
 5. *Planning for minerals development* – sets out the key issues and information on the following areas:
 - Recycled and secondary aggregate
 - Crushed rock
 - Marine-won sand and gravel
 - Land-won sand and gravel
 - Clay
 - Chalk
 - Oil and gas
 - Coal

Minerals data

- 1.6 The information and data from this Study has been predominately derived from the following sources:
- British Geological Survey (BGS);
 - Aggregate Monitoring (AM) survey returns;
 - Berkshire Unitary Authorities – Local Aggregate Assessments 2014 and 2015 (2005-2014 & 2006-2015) (Atkins, August 2016);
 - Replacement Minerals Local Plan for Berkshire – Incorporating the Alterations adopted in December 1997 and May 2001 (Babtie and Joint Strategic Planning Unit);
 - South East Aggregates Monitoring Report 2014 & 2015, 2016, 2017 and 2018 (South East England Aggregate Working Party);
 - West Berkshire Local Aggregate Assessment (West Berkshire Council, June 2018);
 - Central and Eastern Berkshire – Local Aggregate Assessments (2017, 2018 and 2019);
 - Collation of the results of the 2014 Aggregate Minerals survey for England and Wales (BGS and DCLG, 2016);
 - Collation of the results of the 2009 Aggregate Minerals Survey for England and Wales (BGS and CLG, 2011);
 - Withdrawn Joint Minerals and Waste Development Framework Core Strategy – Proposed revisions to Submission Version (Berkshire Authorities, December 2009).
- 1.7 It should be noted that although the Joint Minerals and Waste Development Framework Core Strategy was withdrawn, a considerable amount of work and consultation was undertaken during its preparation. As such, it is considered an important reference point for the direction of minerals and waste planning within the Plan area during this time whilst appreciating that this was prior to the publishing of the National Planning Policy Framework.
- 1.8 As the Central & Eastern Berkshire Authorities were formerly part of the County of Berkshire, along with Slough Borough Council and West Berkshire Council, much of the historic minerals data is reported on a Berkshire-wide level rather than by each unitary authority.
- 1.9 Whilst West Berkshire and Slough are not within the Plan area, it is necessary to make some comparisons or report on mineral demands in these locations as they have clear cross boundary relationships with Central and Eastern Berkshire.

2. Policy context

2.1 This section of the Study provides information on national, regional, and local policy relevant to planning for minerals in Central and Eastern Berkshire.

National policy

2.2 National planning policy for minerals is contained in the National Planning Policy Framework¹⁴ (NPPF) which was published in March 2012 and subsequently updated and revised in 2018 and 2019. The NPPF seeks to ensure that there is an adequate and steady supply of aggregate to provide the infrastructure, buildings and goods that society, industry and the economy needs, but that this provision is made in accordance with the principles of sustainable development. The NPPF recognises that minerals are essential to support sustainable economic growth and our quality of life, and that it is important that there is a sufficient supply of material to provide the infrastructure, buildings, energy and goods that the country needs. It also acknowledges that minerals are finite natural resources, and can only be worked where they are found, so it is important to make best use of them to secure their long-term conservation.

2.3 The NPPF states that in preparing local plan policies minerals planning authorities should¹⁵:

- provide for the extraction of mineral resources of local and national importance;
- 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;
- aim to source minerals supplies indigenously;
- define Minerals Safeguarding Areas;
- encourage the prior extraction of minerals, where practicable and environmentally feasible; and
- safeguard:
 - a. existing, planned and potential sites for: the bulk transport, handling and processing of minerals; the manufacture of concrete and concrete products; and
 - b. the handling, processing and distribution of substitute, recycled and secondary aggregate material;

¹⁴ National Planning Policy Framework (Section 17):

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/779764/NPPF_Feb_2019_web.pdf

¹⁵ National Planning Policy Framework (Para. 204)

- set out environmental criteria against which planning applications will be assessed to ensure operations do not have adverse impact on the natural and historic environment or human health, whilst also taking into account cumulative impacts; and
- outline policies to ensure worked land is reclaimed at the earliest opportunity.

2.4 In addition, when planning for a steady and adequate supply of aggregates, the NPPF states that minerals planning authorities should¹⁶:

- prepare an annual Local Aggregate Assessment based on a rolling average of 10 years sales data, other relevant local information and an assessment of all supply options;
- participate in the operation of an Aggregate Working Party;
- make provision for the land-won and other elements of their Local Aggregate Assessment, taking account of the advice of the Aggregate Working Parties and the National Aggregate Coordinating Group as appropriate;
- take into account 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;
- use landbanks of aggregate minerals reserves principally as an indicator of the security of aggregate minerals supply, and to indicate the additional provision that needs to be made for new aggregate extraction and alternative supplies in mineral plans;
- make provision for the maintenance of landbanks of at least seven years for sand and gravel and at least 10 years for crushed rock, whilst ensuring that the capacity of operations to supply a wide range of materials is not compromised;
- ensure that large landbanks bound up in very few sites do not stifle competition; and
- calculate and maintain separate landbanks for any aggregate materials of a specific type or quality which have a distinct and separate market.

2.5 In relation to industrial minerals, the NPPF states that minerals planning authorities should¹⁷:

- co-operate with neighbouring and more distant authorities to co-ordinate the planning of industrial minerals to ensure adequate provision is made to support their likely use in industrial and manufacturing processes;

¹⁶ National Planning Policy Framework (Para. 207):

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/810197/NPPF_Feb_2019_revised.pdf

¹⁷ National Planning Policy Framework (Para. 208)

- encourage safeguarding or stockpiling so that important minerals remain available for use;
- provide 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, as follows:
 - at least 10 years for individual silica sand sites;
 - at least 25 years for brick clay, and 15 years for cement primary and secondary materials to support a new kiln; and
- take into account the need for provision of brick clay from a number of different sources to enable appropriate blends to be made.

2.6 For oil and gas development, the NPPF states that mineral planning authorities should¹⁸:

- when planning for on-shore oil and gas development, including unconventional hydrocarbons, clearly distinguish between the three phases of development (exploration, appraisal and production) and address constraints on production and processing within areas that are licensed for oil and gas exploration or production; and
- encourage underground gas and carbon storage and associated infrastructure if local geological circumstances indicate its feasibility.

2.7 The Planning Practice Guidance¹⁹ (PPG) which sits alongside the NPPF was launched in 2014 and is a live document, updated as necessary by the Government.

2.8 The PPG²⁰ outlines how aggregate supply is managed nationally through the Managed Aggregate Supply System (MASS):

'The Managed Aggregate Supply System seeks to ensure a steady and adequate supply of aggregate mineral, to handle the significant geographical imbalances in the occurrence of suitable natural aggregate resources, and the areas where they are most needed. It requires mineral planning authorities which have adequate resources of aggregates to make an appropriate contribution to national as well as local supply, while making due allowance for the need to control any environmental damage to an acceptable level. It also ensures that areas with smaller amounts of aggregate make some contribution towards meeting local and national need, where that can be done sustainably.'

¹⁸ National Planning Policy Framework (Para. 209):

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/810197/NPPF_Feb_2019_revised.pdf

¹⁹ Planning Practice Guidance: <http://planningguidance.communities.gov.uk/>

²⁰ Planning Practice Guidance: www.gov.uk/guidance/minerals (Paragraph: 060 Reference ID: 27-060-20140306)

The Managed Aggregate Supply System works through national, sub-national and local partners working together to deliver a steady and adequate supply of aggregates’.

- 2.9 The landbank is a key tool which underpins the working of the Managed Aggregate Supply System and acts a monitoring tool and provides the main basis for mineral planning authority to determine whether to review their minerals local plan.

Regional policy

- 2.10 The South East Plan was partially revoked on 25 March 2013. Policy NRM6, which deals with the Thames Basin Heaths Special Protection Area, remains in place as a saved policy²¹ and is relevant to the Plan area (see Appendix 1). Although the policy refers to housing development the need for mitigation measures may need to be taken into consideration when determining suitable restoration uses for mineral sites.

Local policy

- 2.11 The currently adopted minerals plan for the Central & Eastern Berkshire Authorities, is the Replacement Minerals Local Plan for Berkshire adopted in 1995 and subsequently adopted alterations in 1997 and 2001²² (including Appendices and saved policies). The Minerals Local Plan covers the administrative areas covered by the Central & Eastern Berkshire Authorities, as well as Slough Borough Council and West Berkshire Council. While the plan covered the period until 2006, the Secretary of State directed that a number of policies (see Appendix 1) should be saved indefinitely until replaced by national, regional or local minerals and waste policies. For Central and Eastern Berkshire these saved policies will be replaced by the JMWP when it is adopted.
- 2.12 A review of the Replacement Minerals Local Plan for Berkshire and the Waste Local Plan for Berkshire was previously being undertaken on behalf of the six Berkshire Unitary Authorities by the Joint Strategic Planning Unit (JSPU). The JSPU published a 'Preferred Options' version of the Joint Minerals and Waste Core Strategy in September 2007 and a Submission Draft version was published in September 2008. The Core Strategy was submitted to the Secretary of State in February 2009. The Minerals and Waste Core Strategy Examination commenced in June 2009. During the hearing, concerns were

²¹ Natural Resource Management (NRM6):
https://www3.rbwm.gov.uk/downloads/file/811/south_east_plan_policy_nrm6

²² Replacement Minerals Local Plan for Berkshire (2001):
https://www3.rbwm.gov.uk/info/200209/planning_policy/1345/minerals_and_waste_plans

raised regarding the accuracy of the evidence base used to support the waste strategy. As a result of these concerns the Inspector decided to adjourn the Examination and the Secretary of State subsequently formally requested the withdrawal of the Core Strategy in January 2010.

2.13 After a review of minerals and waste planning, the Central & Eastern Berkshire Authorities decided to progress with a JMWP. While the JMWP does not cover Slough Borough Council²³ or the West Berkshire Council²⁴, close coordination of the work between the various Berkshire authorities will continue in order to plan for minerals and waste strategically and address any cross-border issues that may arise.

2.14 Each of the Central & Eastern Berkshire Authorities will continue to prepare its own Local Plan, which will focus on the areas of planning that are not related to minerals and waste development. They include the following:

- Bracknell Forest Local Plan²⁵;
- New Local Plan for Reading²⁶;
- Borough Local Plan for Windsor and Maidenhead²⁷; and
- Local Plan Update for Wokingham²⁸.

²³ Slough Borough Council minerals and waste policy: www.slough.gov.uk/council/strategies-plans-and-policies/minerals-and-waste.aspx

²⁴ Emerging West Berkshire Minerals and Waste Local Plan: <http://info.westberks.gov.uk/index.aspx?articleid=29081>

²⁵ Comprehensive Local Plan for Bracknell: www.bracknell-forest.gov.uk/comprehensivelocalplan

²⁶ New Local Plan for Reading: www.reading.gov.uk/newlocalplan

²⁷ Borough Local Plan for Windsor and Maidenhead: https://www3.rbwm.gov.uk/info/201026/borough_local_plan/1351/submission/1

²⁸ Local Plan Update for Wokingham: <https://www.wokingham.gov.uk/planning-policy/planning-policy-information/local-plan-update/>

3. Minerals development

- 3.1 This section considers the background to mineral developments such as quarries and the role they have in development. It also outlines:
- General issues and constraints on minerals planning that need to be taken into account in the assessment of options for mineral supply; and
 - Opportunities and benefits which may be associated with mineral development.

The strategic and economic importance of minerals development

- 3.2 Minerals are an important element both in the national economy and that of the Plan area. Their exploitation can make a significant contribution to economic prosperity and quality of life. The maintenance of a buoyant economy, the improvement and development of infrastructure and maintenance of the building stock all requires an adequate supply of construction minerals known as aggregates.
- 3.3 Minerals development is a key part of the wider economy. The location and type of minerals development can lead to local economic benefits, through the supply of a local resource to development projects and the provision of local employment.
- 3.4 Mineral production is influenced by economic factors, in terms of operators wishing to extract based upon the market demand for these mineral resources. The demand for mineral resources will be determined by the action of the market and macro-economic forces that are beyond the remit of the minerals planning authority to influence.
- 3.5 The performance of the economy is constantly changing, and the activities of the minerals industry could give rise to temporary and reversible effects (in that shortages of local supply could have implications for the timing and cost of physical development but would be unlikely to prevent it from going ahead altogether).

Ensuring resource efficiency and sustainable development

- 3.6 Sustainable minerals development is essential to minimise potential adverse impacts on the environment and local communities. Therefore, the design, construction and operation of minerals development are very important considerations. For example, the use of conveyors to transport mineral from the extraction site to a processing plant instead of vehicles would reduce the number of vehicle movements and the associated noise and dust impacts.

Supporting employment

- 3.7 The minerals industry provides direct employment and influences indirectly employment in a number of other industries, such as the construction and manufacturing sector. However, employment can be temporary (in that opportunities for direct employment would exist for the lifetime of a mineral site) and reversible (in that the labour force could grow or contract in line with demand for minerals).
- 3.8 The minerals industry underpins the wider economy and its employment with construction markets such as improving housing stock, transport, commercial and industrial buildings, schools and hospitals. As well as non-construction markets such as iron and steel manufacture, glassmaking, agriculture and pharmaceuticals²⁹.

Opportunities and benefits from minerals development

Co-location of minerals developments

- 3.9 Minerals development may also provide the opportunity for the co-location of other minerals activities. For example, mineral extraction sites can be used for other uses such as aggregate recycling. However, this can only take place in appropriate locations that comply with other development management policies and criteria.

Restoration and aftercare of mineral workings

- 3.10 The effective restoration, as well as the long-term aftercare, of minerals and waste development is an integral part of all mineral extraction. Although the extraction of minerals and landfilling are only considered to be temporary, albeit potentially long-term land uses, it is critical that the restoration and aftercare of these sites is carefully planned and maintained, to ensure that maximum benefits are achieved for local communities and environment. This approach is reinforced in the NPPF³⁰ which states that local planning authorities should provide for restoration to be carried out to a high environmental standard through appropriate conditions to planning applications.
- 3.11 Minerals development can be restored to meet wider planning objectives. Restoration and aftercare of a mineral site is an essential element of any

²⁹ The Mineral Products Industry at a glance: <https://mineralproducts.org/documents/Facts-at-a-Glance-2018.pdf>

³⁰ National Planning Policy Framework (Para. 204 & 205): https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/779764/NPPF_Feb_2019_web.pdf

planning application and associated permission for development. It can include the following elements:

- improving public access to the countryside and open spaces;
- creating and enhancing habitats and species;
- enhancement of landscape;
- improving accessibility to the historic environment;
- adapting and mitigating to climate change;
- management of water resources;
- improvements to agricultural and forestry land;
- sustainable tourism facilities;
- environmental education; or
- energy security.

3.11 There may be opportunities for the multiple uses of restored sites and cross-cutting benefits. For example, this may include restoration for biodiversity enhancement alongside public and recreational access.

3.12 Restoration of minerals and waste developments will be considered in more detail in the *Restoration Study*³¹ which will accompany the JMWP.

Mineral development constraints and planning issues

3.13 There are a number of different constraints and issues which may impact the location of minerals development in Central and Eastern Berkshire. These include:

- geology;
- potential impact on nature conservation;
- potential impact on water resources and flooding;
- potential impact on landscape and historic heritage designations;
- potential impact on land, soils and water;
- potential impact on local communities and health;
- transportation of mineral;
- potential impact on public safety;
- viability of mineral deposits;
- the safeguarding of mineral resources; and
- potential impacts on the climate.

3.14 These issues and constraints all need to be taken into account through the plan-making process and when applications for minerals development have been submitted to the relevant mineral planning authority for consideration.

³¹ Restoration Study: www.hants.gov.uk/berksconsult

Geology

- 3.15 Minerals development is very different from other forms of development because minerals can only be worked where they occur naturally, based on geological deposits. The scope for finding alternative locations for mineral workings is therefore limited.

Potential impact on nature, landscape and other designations

- 3.16 International or nationally designated sites have the highest level of protection afforded to them. Minerals development may often be located close to or within such areas. Permission in these areas may require additional mitigation and controls or may not be feasible dependant on the designation.
- 3.17 Mineral development is an exception to the restrictions on the development in the Green Belt, as set out in National Policy³². This is provided that they preserve the openness of the Green Belt and do not conflict with the purposes of the Green Belt designation.

Potential impact on water resources and flooding

- 3.18 Floodplains (groundwater / fluvial / tidal), Source Protection Zones (SPZs), minor and major aquifers, groundwater depth, type of geology and smaller abstractions (without modelled SPZs) are all constraints and will need to be taken into consideration when identifying sites.

Potential impact on land, soils and water

- 3.19 Minerals development tends to be in areas of rich soil quality. This can include best and most versatile agricultural land.
- 3.20 Development must take account of local environmental constraints such as the potential effects on surface water, groundwater and flooding. Water quality must be either improved or at least maintained.

Potential impact on communities

- 3.21 Minerals development should not have an undue significant impact on communities if it is designed, managed, and located appropriately. However, concerns may still be raised at the time of a planning application, about the potential impacts of noise and dust, as well as associated lorry movements.

³² National Planning Policy Framework (Para. 146):
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/779764/NPPF_Feb_2019_web.pdf

Such issues need to be addressed to ensure that minerals development does not significantly impact the amenity of local communities and policies are put in place to secure community protection.

- 3.22 Planning conditions attached to planning permissions for minerals development can reduce and mitigate any potential impacts, as appropriate. For example, many minerals developments will be supported by a lorry routeing agreement or a dust and noise suppression scheme to reduce and mitigate any potential impacts on local communities.
- 3.23 Detailed consideration of minerals processes and the implications, if any, for human health is the responsibility of the pollution control authorities. However, planning authorities operate in the public interest to ensure that the locations of proposed development are acceptable, and health is material to such decisions. Minerals extraction and processing will inevitably have physical impacts. However, the primary aim of minerals planning is to prevent, minimise or mitigate these impacts to an acceptable level.
- 3.24 Most environmental effects can be controlled by suitable planning conditions, although some, such as air or water pollution, are dealt with separately by the Environment Agency (EA) through environmental protection legislation.
- 3.25 Air pollution in the form of dust emissions is considered to be one of the main potential threats to human health from mineral workings. To mitigate against the potential impacts of dust on health, mineral planning authorities may agree or specify planning conditions relating to:
- buffer zones between the proposed development and adjoining sensitive areas such as residential areas, schools, hospitals and businesses;
 - layout of the site;
 - management of stockpiles;
 - hard surfacing of vehicle areas;
 - containment of conveyors and processing plant and dust collection equipment;
 - use of bowsers, sprays and vapour masts on haul-roads, stockpiles, transfer points;
 - design of material-handling systems, drop heights, wind guards, loading points;
 - limiting levels of dust measured in a specific way; provision of monitoring facilities;
 - agree the method of monitoring dust (how and where), together with the limits; and
 - the containment of material transported from the site to protect the environment and people along the route from the site.

- 3.26 Noise is an inevitable consequence of surface minerals operations using heavy plant and machinery. With much of the activity being carried out in the open, this has implications for the level of noise attenuation that is possible. National Planning Policy³³ requires the minerals industry to keep noise emissions to a level that reflects the highest environmental standards and to work for continuous improvement. Its policy is to secure reduced noise emissions in both urban and non-urban areas and at noise-sensitive areas and properties. In an Environmental Impact Assessment (EIA) accompanying any planning application for a new or extended quarry, operators will be required to provide information on existing ambient noise levels at affected properties, predicted noise levels at different stages of working, details of noise mitigation measures and monitoring procedures.
- 3.27 Any application for minerals working should include details of measures for the protection of ground and surface water. This may include:
- requirements for the provision of settlement lagoons;
 - the way in which surface water is disposed of, so as not to increase risk of flooding;
 - the avoidance of impairing drainage from adjoining areas; and
 - the prevention of material entering open water courses, and any proposal for dewatering the mineral excavation area.
- 3.28 The transportation of aggregates can also have an impact on local communities. This is considered below.
- 3.29 Whilst minerals can only be worked where they naturally occur, good planning can ensure that they are worked in a controlled manner, so that health and community impacts are managed to an acceptable level.

Transporting aggregates

- 3.30 Minerals can only be extracted where they are found. Therefore, minerals are likely to be transported elsewhere and at the same time minerals are likely to be supplied from elsewhere.
- 3.31 It is normally expected that minerals development should be located with good access onto the strategic highway network. The routes will be dependent on the location of the quarries and the market, which can change over time as the focus of development changes.

³³ National Planning Policy Framework (Para. 180):
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/779764/NPPF_Feb_2019_web.pdf

- 3.32 Heavy Goods Vehicles (HGV) traffic is often regarded as one of the most visible features associated with mineral production. This may include complaints made to mineral planning authorities about the intimidating effect of large vehicles, danger, use of roads unsuitable for the size of vehicle, damage to verges, dust, spillages, mud from wheels, vibration and noise.
- 3.33 Conditions and legal agreements on transport management and HGV routing can be used to mitigate some of these impacts. Alternatives to road transport such as conveyors, water and rail should be encouraged where feasible. Planning conditions can be specified relating to:
- site working hours;
 - direction vehicles turn out of the site;
 - provision of signposting;
 - sheeting of HGVs; and
 - wheel / vehicle washing facilities.

Public safety

- 3.34 Minerals can be located in areas which are subject to some form of 'safeguarding' relating to public safety. This can include 'Bird Strike' zones around commercial and Ministry of Defence aerodromes. Minerals operations within these areas, including site working and restoration, can be affected due to the need to keep birds away from flight paths.

Viability of mineral deposits

- 3.35 Whilst mineral resources may be known to be found at a given location, extraction may only take place when there is a mineral operator that has the inclination to submit an application to the minerals planning authority for consideration. A number of factors may affect this decision such as the current economic value of the reserve, the local, regional and national need for these minerals and the level of existing mineral extraction currently being undertaken by the operator and others in the area.
- 3.36 A further important constraint is that imposed by land ownership or areas of mineral potential, as the willingness of landowners is fundamental to deliverability.

Safeguarding and sterilisation of mineral resources

- 3.37 In order to secure a supply of mineral for communities and businesses, it is necessary to ensure that opportunities for extracting suitable mineral resources

exist now, and in the future, and these are protected. This is known as 'safeguarding'.

- 3.38 It is also important that viable mineral reserves (not previously extracted) are protected from other forms of non-minerals development. Safeguarding reserves ensures that the mineral is not permanently 'sterilised' by other developments such as housing. Sterilised resources are considered to be unworkable as a result of the development. Safeguarding of areas with viable mineral does not provide a presumption for the working of the mineral but is used to provide a greater level of protection and is taken into consideration when determining applications for built development.

Prior extraction

- 3.39 It is important that where opportunities exist, mineral should be extracted before other forms of non-mineral development take place (i.e. the mineral is sterilised). This is known as 'prior extraction'. Prior extraction may result in all or part of the mineral reserves being extracted. However, its extraction, even at a lower level, is much more sustainable than its permanent sterilisation. This is supported through National Policy³⁴.

- 3.40 It is also important that existing mineral sites are protected from other inappropriate development. Safeguarding operational and allocated sites ensures that the reserves can be extracted without interferences to meet demand. Through safeguarding, minerals planning authorities can resist other types of future development (e.g. housing) which could be incompatible with existing mineral operations.

Mitigating against and adapting to climate change

- 3.41 Minerals, along with recycled and secondary aggregates do not decompose to release greenhouse gases, unlike waste. However, the extraction and processing of minerals can contribute to climate change. If minerals and other natural resources are not reused or recycled, then new primary resources have to be extracted and new products manufactured resulting in the use of additional energy.

- 3.42 Research has shown that the biggest carbon emission and reduction issues in the UK's onshore mineral production and use arise not from extraction and

³⁴ National Planning Policy Framework (Para. 204):
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/779764/NPPF_Feb_2019_web.pdf

initial transport, but in downstream processing of mineral products³⁵. Some of this is very energy intensive. However, there are also links between minerals development and climate change, relating to the energy used by machinery in the extraction/processing and transport. Mitigation measures can be applied such as the use of in-field conveyors.

3.43 Transporting minerals from source to users can be carbon intensive. Reducing the transportation of minerals, by re-using or recycling construction and demolition waste on site where possible, can reduce the impact.

3.44 The Office for National Statistics highlighted that in 2010, the quarrying and mining industries were one of the industries within the highest greenhouse emissions (alongside agriculture and energy supply)³⁶. The UK Minerals Strategy³⁷ suggests that there is a relatively small carbon footprint associated with minerals development (under 0.3% of the UK's land area and 0.15% of the UK seabed) but recognises there is a need for investment and innovation in reducing impacts.

³⁵ UK Minerals Forum – Carbon and Proximity in Minerals Working Group (June 2009):

<https://www.ukmineralsforum.org.uk/groups.php>

³⁶Greenhouse gas emissions intensity, UK: 2018 estimates (Office for National Statistics):

<https://www.ons.gov.uk/economy/environmentalaccounts/bulletins/greenhousegasintensityprovisional/estimatesuk/2018provisionalestimates>

³⁷ UK Minerals Strategy (2018): https://mineralproducts.org/documents/UK_Minerals_Strategy.pdf

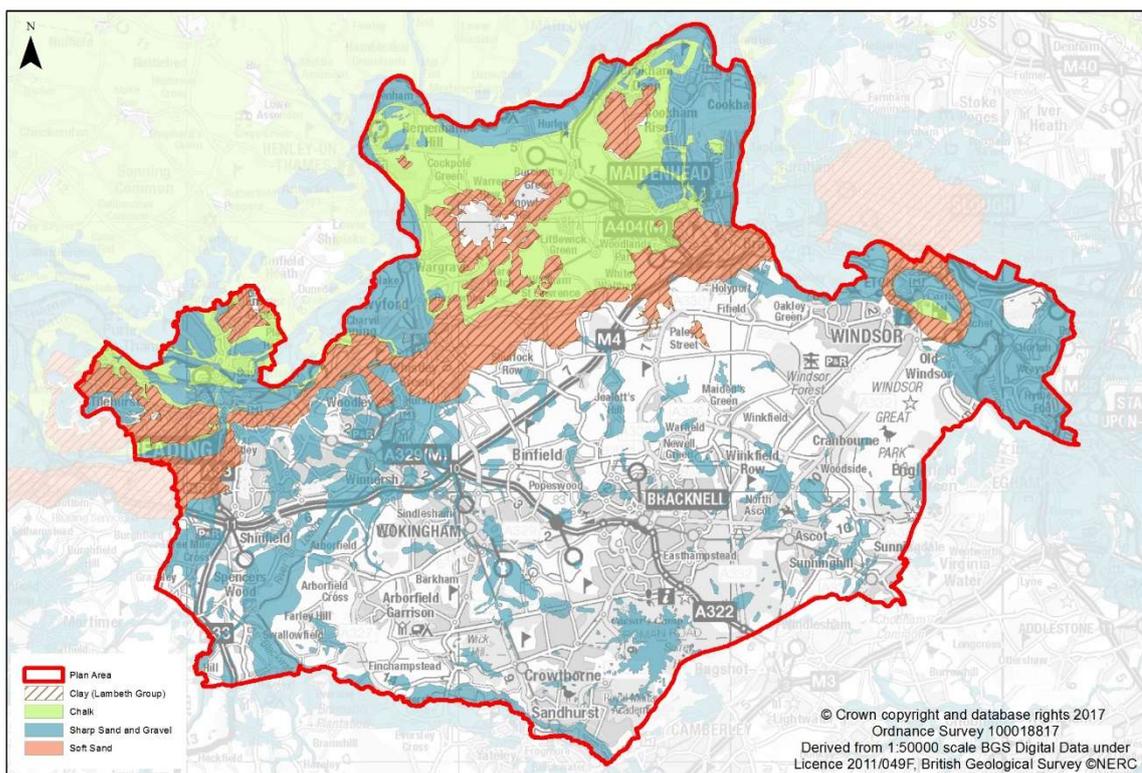
4. Mineral issues in Central and Eastern Berkshire

4.1 This section sets out the issues affecting minerals development in Central and Eastern Berkshire.

Central and Eastern Berkshire Geology

4.2 Geology is the first factor to consider for the minerals planning of an area and the geological structure of the former Berkshire county area comprises three main types of minerals – sand and gravel, chalk and clay. Each of these has been, and continues to be, extracted to varying extents. Soft sand is reported on separately to sharp sand and gravel because of the particular characteristics that make it important to the construction industry. There are no ‘hard’ rock deposits like limestone in the Plan area. Figure 3 shows the extent of the three main deposits.

Figure 2: Geological map of Central and Eastern Berkshire



4.3 Berkshire’s principal geological deposit, in economic terms, are the aggregate or construction minerals which comprise sharp sand and gravel, suitable for most types of concreting purposes. There are also deposits of soft sand, suitable either as a fill material, or in limited circumstances as building sand for use in making mortar or plaster, or in asphaltting.

- 4.4 The other minerals, such as chalk and clay, do have a limited role which is explained in due course. **The mineral of more than local significance in Central and Eastern Berkshire is sharp sand and gravel. Owing to the obligations under the NPPF and more specifically Managed Aggregate Supply System, there is a requirement for the Central & Eastern Berkshire Authorities to enable provision of this mineral as best they can.** Accordingly, this Study gives some emphasis to the issues of local primary aggregate supply and alternatives to these.
- 4.5 Geologically, sharp sand and gravel is a very recent deposit, dating from the end of the last ice age (c. 11,700 years ago). As shown in Figure 3, sharp sand and gravel is predominately found along the river valleys, notably the Kennet (which runs from West Berkshire to Reading), Loddon and Thames. It is also found in the river terrace deposits (formerly called 'plateau gravels') which are the remnants of earlier abandoned floodplains raised by geological forces above the present course of the rivers.
- 4.6 The better-quality sharp sand and gravel is mainly used for making concrete and is referred to as 'concreting sand'. Where the deposit contains clay and silt, it is not suitable for concreting and instead is used as a sub-base in roads and hardstandings, or otherwise as a fill material. This poorer quality sharp sand and gravel is colloquially known as 'hoggin'.
- 4.7 Soft sand is a much older deposit, dating from around 60 million years ago. In Berkshire, it principally occurs in the Reading Formation. The Reading Formation is a bedrock deposit, predominately clay bearing, but also containing sand beds. It outcrops on the higher ground above the Kennet Valley, and in bands between Reading and Maidenhead.
- 4.8 Bedrock deposits are generally thicker than the superficial sharp sand and gravel deposits, and hence the yield per hectare is higher.

Mineral extraction in Central and Eastern Berkshire

- 4.9 Until the 20th Century, chalk and clay were the main minerals produced in the area, generally to meet local needs. Chalk and clay continue to be extracted as a by-product at sand and gravel quarries, but now on a very small scale in comparison to previous times.
- 4.10 The chalk is now mainly used as agricultural lime, and sometimes as 'fill' material for civil engineering projects. The clay was formerly used chiefly for brick and tile making, but today its main use is as part of the lining for waste landfill sites to prevent the spread of pollution and for other engineering applications.

- 4.11 Since the Second World War, the main type of minerals production in Berkshire has been of aggregates for the construction industry, which comprise sands and gravels. Substantial quantities of aggregate minerals are needed for all construction work – in the building or renovation of houses, schools, hospitals, roads and so on.
- 4.12 Reflecting the proximity to urban areas, where the main demand for construction materials arises, quarrying of aggregates in Berkshire has been focussed on the sharp sand and gravel deposits in the Kennet Valley, and between Reading and Newbury. Additionally, there are concentrations of past and active workings in the north and south of Maidenhead and south of Slough. Most aggregate is processed by the operator, either on-site or at central processing facility nearby and sold direct for use in the construction industry.
- 4.13 The role of the JMWP will be to make provision for the mineral resources that are important to the functioning of the economy and that can be extracted or imported into the Plan area. The most significant way in which the JMWP can influence the economy is by ensuring that a steady and adequate provision of the key mineral resources is made to meet the anticipated demand for the lifetime of the Plan.

Mineral development considerations

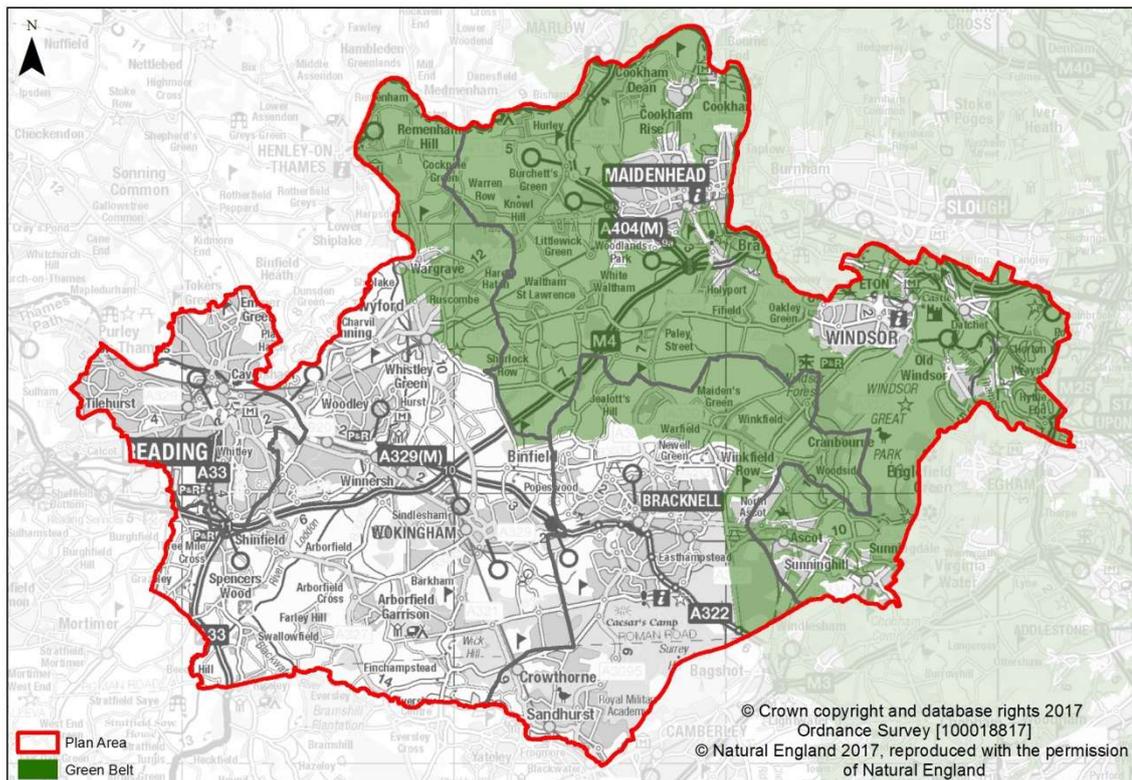
Designated areas

- 4.14 There are no Areas of Outstanding Beauty (AONB) or National Parks within Central and Eastern Berkshire. However, the North Wessex Downs AONB and Chilterns AONB border the Plan area to the northwest.
- 4.15 There are a number of sites designated for their International, National and Local importance within the Plan Area. Bracknell Forest and Windsor & Maidenhead both have sites of international importance including the Windsor Forest Great Park Special Area of Conservation (SAC), Chiltern Beechwoods SAC, Thames Basin Heaths Special Protection Area (SPA) and South West London Wetlands SPA and Ramsar.
- 4.16 Central and Eastern Berkshire has a rich historic heritage with features such as Windsor Great Park, Windsor Castle, Home Park and the Frogmore Estate and proposed minerals development must take this into consideration.

4.17 More information on nature conservation and landscape designations will be set out in the *Habitats Regulations Assessment*³⁸ and *Strategic Landscape & Visual Impact Assessment*³⁹ which will accompany the JMWP.

4.18 A large proportion of the Plan area is designated as Green Belt (see Figure 4). However, this is not considered to prevent mineral extraction as long as the purpose of the Green Belt and openness are not impacted.

Figure 3: Green Belt designation in Central and Eastern Berkshire



Water environment and soils

4.19 The water environment of the Plan area is dominated by the River Thames and its tributaries as it lies within the Thames River Basin. The area has a complex surface and groundwater system and many areas are designated as Flood Zone 3.

4.20 Minerals development tends to be in areas of rich soil quality. The Plan area contains agricultural land of mixed quality with the more rural boroughs featuring the best and most versatile land.

³⁸ Habitats Regulation Assessment: www.hants.gov.uk/berksconsult

³⁹ Strategic Landscape & Visual Impact Assessment: www.hants.gov.uk/berksconsult

Impacts on communities

- 4.21 As the statutory minerals planning authorities, the Central & Eastern Berkshire Authorities will seek to ensure that any proposed minerals development has minimal effects on the health of neighbouring residents, businesses, site employees and visitors. Minerals extraction and processing will inevitably have physical impacts. However, the primary aim of minerals planning is to prevent, minimise or mitigate these impacts to an acceptable level.

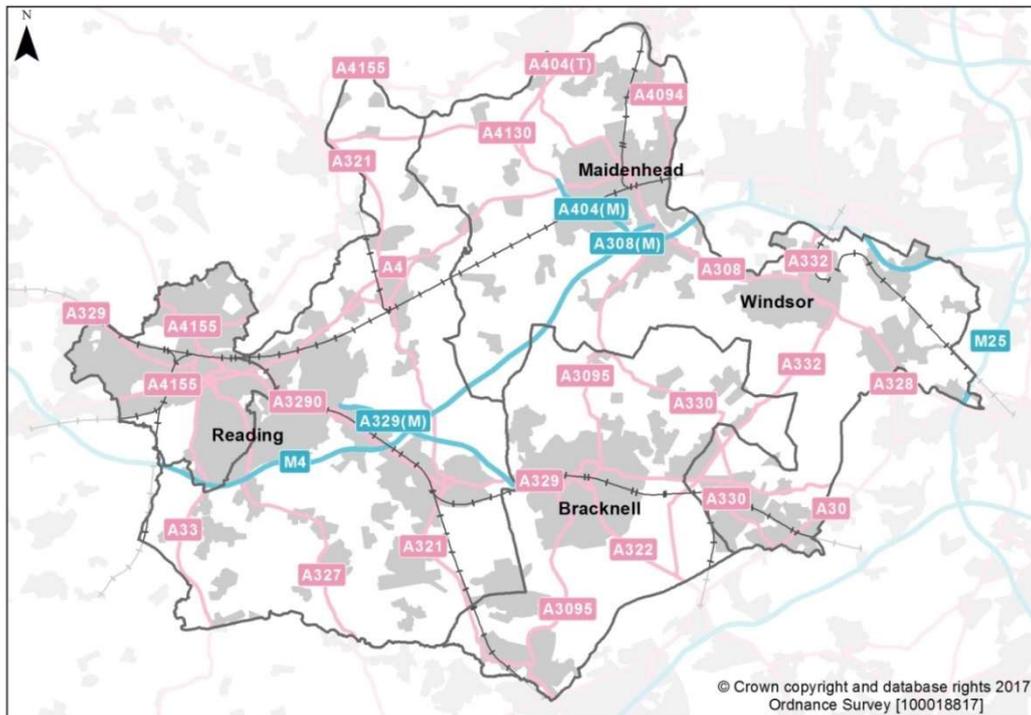
Transport

- 4.22 Central and Eastern Berkshire has many close functional interrelationships with its neighbouring authorities. Mineral won and processed in Central and Eastern Berkshire are not necessarily used within the Plan area. Some are likely to be transported elsewhere and at the same time minerals, such as crushed rock, which is not found within Central and Eastern Berkshire, are supplied from elsewhere.

Road

- 4.23 As there are currently no operational rail depots within Central and Eastern Berkshire, all of the minerals within the Plan are transported by road. The route may be from quarries or processing plants within or outside of Central and Eastern Berkshire or from rail depots in neighbouring authorities.
- 4.24 There is an extensive road network within Central and Eastern Berkshire (see Figure 5). Highways England has identified the Strategic Route Network as the M4, A308M and A404M in Central and Eastern Berkshire which link with the M25 and A34. Other key trunk and A-roads within Central and Eastern Berkshire include, in the eastern part of Berkshire, the M4/A4 corridor and the network of routes linking the main centres and their hinterlands. These include the A404, the A332 through Windsor, the A308 through Maidenhead and the A329/A322 through Bracknell and Wokingham and on through Reading.

Figure 4: Strategic transport routes in Central and Eastern Berkshire



Rail

4.25 Central and Eastern Berkshire is well connected by rail but does not currently contain any operational aggregate rail depots and, therefore, is dependent on those located in neighbouring authorities – in particular the rail depots at Theale in West Berkshire.

4.26 The Berkshire Replacement Minerals Local Plan identified a number of potential rail depot sites including:

- Padworth (Depot Site 1) in West Berkshire;
- Pingewood (Depot Site 2) on the Wokingham/West Berkshire/Reading borders but within the administrative area of Wokingham; and
- Slough Goods Yard (Depot Site 3), Poyle (Depot Site 4) and Colnbrook (Depot Site 5) in Slough.

4.27 The site known as Pingewood in the *Replacement Minerals Local Plan for Berkshire (incorporating the alterations adopted in December 1997 and May 2001)* was identified as a location for a new rail depot (Depot Site 2). However, planning permission has been granted for a mixed-use development incorporating a new railway station on the site, now known as Green Park Village, and therefore it is no longer available for a rail depot.

- 4.28 The rail depot at Colnbrook in Slough is currently operational but serves the operations in the immediate vicinity, such as the concrete batching plant, rather than serving the wider area.
- 4.29 Heathrow Airport Limited state⁴⁰ that, although in the early design phase, the reconfiguration of the Colnbrook rail depot is being examined to allow construction of a rail siding for Heathrow expansion construction materials alongside the continued aggregate operation. It is envisaged that, should the proposal proceed, the rail depot will remain following the construction of the airport expansion and therefore, has potential as a depot for rail based mineral imports
- 4.30 The South East England Regional Assembly (SEERA) commissioned a report of Aggregate Wharves and Rail Depots in South East England dated 2007⁴¹. The report did not include any detailed information about capacities of either wharves or rail depots for reasons of confidentiality. The report noted that freight path capacity on the mainlines in the South East is likely to be the major factor restricting further supply of aggregates by rail freight into the region but concluded that the existing rail depot capacity in the South East is sufficient to handle the forecast growth in aggregate demands. This is confirmed by the finding that the depots have handled higher throughputs of material in the past than is the case more recently.
- 4.31 The 2018 South East England Aggregate Working Party (SEEAWP) Annual Report suggests that rail depot capacity has sufficient capacity margin (headroom) of around 25%⁴². Industry have expressed concern at SEEAWP meetings that a capacity margin of less than 25% might indicate a potential problem for future aggregates supply.
- 4.32 On this basis, it could be concluded that there is no requirement from a regional capacity perspective, to plan for additional rail depots across the South East or in the wider Berkshire area. The operators of the rail depots at Theale and Colnbrook show no indication at present of seeking to increase capacity, other than in the case of Colnbrook, to serve the Heathrow Expansion proposals.

⁴⁰ Response from Heathrow Airport Ltd to Issues & Options consultation:
www.hants.gov.uk/berksconsult

⁴¹ The Study of Aggregate Wharves and Rail Depots in South East England Prepared for the South East England Regional Assembly (SEERA) by MDS Transmodal Limited (2007):
www.iwight.com/azservices/documents/2782-FI5-Aggregate-Wharves-and-Rail-Depots-in-South-East-England.pdf

⁴² South East England Aggregate Working Party (SEEAWP) Annual Report 2018 (Jan 2020):
<https://documents.hants.gov.uk/see-awp/SEEAWP-annual-report-2018.pdf>

- 4.33 Nevertheless, the SEERA report recommended that policy documents should safeguard the current capacity to cater for ongoing demand and permit the development of new rail served depots at suitable locations in the event that proposals are brought forward by operators in the future. The NPPF also requires the safeguarding of existing, planned and potential sites for the bulk transport of minerals⁴³. This will ensure and enhance the geographic choice across the South East.
- 4.34 Neighbouring Hampshire does not have any operational rail depots in the north of the county which could supply Central and Eastern Berkshire and the two allocations in their adopted Minerals & Waste Plan⁴⁴ (at Micheldever and Basingstoke) have not yet come forward.
- 4.35 The rail depot within Surrey (Woking) and a number of depots in Hillingdon, West London are likely to be servicing the Plan area.
- 4.36 The potential for rail connection at mineral sites or a rail depot in the Plan area could reduce the need for local road impacts, although the likelihood of this opportunity is dependent on a number of factors including location of minerals, access to the rail network and cost. Crossrail is also likely to impact the timetabling of any additional train services including freight, as these lines will be running at virtually full capacity. However, the possibility should be considered within the JMWP should a future opportunity arise.
- 4.37 Although outside the administrative control of the Central & Eastern Berkshire Authorities, the Authorities support the safeguarding of the rail depots in West Berkshire and Slough through Statements of Common Ground, should their operations as aggregate rail depots be threatened.

Water

- 4.38 As a landlocked Plan area, there are no aggregate wharves within Central and Eastern Berkshire.
- 4.39 The Kennet & Avon Canal which joins Newbury and Reading is a smaller waterway and is not considered to have significant potential for freight movements by the Inland Waterways Association⁴⁵. It is currently not known whether the River Thames is suitable for freight from Windsor Bridge to Staines

⁴³ National Planning Policy Framework (Para. 204e) - https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/810197/NPPF_Feb_2019_revised.pdf

⁴⁴ Hampshire Minerals and Waste Plan (2013): <http://documents.hants.gov.uk/mineralsandwaste/HampshireMineralsWastePlanADOPTED.pdf>

⁴⁵ IWA Policy on Freight on Inland Waterways (2012): https://www.waterways.org.uk/pdf/freight_policy

Bridge although large barges are able to use this waterway⁴⁶. However, this may be limited as the river is non-tidal from Teddington Lock.

4.40 Due to the potential for water transportation of minerals the JMWP should seek to safeguard and encourage water accessed sites, subject to the consideration of other constraints.

4.41 The transportation of minerals (and waste) is considered in more detail in the *Strategic Traffic & Transport Assessment*⁴⁷ which accompanies the JMWP.

Safeguarding

4.42 Mineral Safeguarding Areas are proven mineral deposits which are protected from development that might needlessly sterilise these resources⁴⁸. There is no presumption that safeguarded mineral deposits will be worked, but in the event a development is proposed that might prevent future mineral extraction, due consideration will be given to protecting the resource or to prior extraction (removal of some of the resource prior to development taking place).

4.43 The key minerals for Central and Eastern Berkshire and its economy are those most closely linked to the construction industry, these include the deposits of sharp sand and gravel and soft sand.

4.44 Clay in Berkshire only occurs in the Lambeth Group bedrock deposits of sand and gravel. It is therefore already proposed to be safeguarded by association with the Mineral Safeguarding Areas for sand and gravel.

4.45 The safeguarding of mineral resources and infrastructure is considered in more detail in the *Minerals & Waste Safeguarding Study*⁴⁹.

⁴⁶ The River Thames and Connecting Waterways 2013-2014:

www.gov.uk/government/uploads/system/uploads/attachment_data/file/289796/LIT_6689_3e9c5e.pdf

⁴⁷ Strategic Traffic & Transport Assessment: www.hants.gov.uk/berksconsult

⁴⁸ National Planning Policy Framework (Para. 204c):

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/810197/NPPF_Feb_2019_revised.pdf

⁴⁹ Minerals & Waste Safeguarding Study: www.hants.gov.uk/berksconsult

5 Planning for minerals in Central and Eastern Berkshire

5.1 This section of the Study considers planning for minerals which in Central and Eastern Berkshire includes aggregates (recycled aggregate, sand and gravel including sharp and soft sand), imported aggregate, chalk, clay, oil, gas and coal.

Aggregates

5.2 Aggregate is the term used to describe the type of minerals that are used by the construction industry, and are defined by the British Geological Survey (BGS)⁵⁰ as:

"...the most commonly used construction materials used in the UK. They are essential for constructing and maintaining what is literally the physical framework of the buildings and infrastructure on which our society depends."

5.3 They are the largest component of minerals and are the most voluminous materials extracted from the UK landmass.

5.4 Aggregates consist of granular or particulate material, which is suitable for use on its own, or with a binder such as cement, lime or bitumen (in construction). They are also used in concrete, mortar, roadstone or asphalt (drainage courses), or for constructional fill and railway ballast. The two principal types of natural (or primary) aggregate within the UK are crushed rock (limestone, igneous rock and sandstone) and sand and gravel. Other primary aggregate used in the construction industry includes clay, chalk, limestone, dolomite, brick clay, gypsum, slate and building stone.

5.5 Primary aggregates are those aggregates which can be obtained naturally and are either obtained from the ground ('land-won') or from the sea ('marine-won') through marine dredging. The primary aggregates that are most commonly used in construction are sand and gravel and crushed rock.

5.6 Construction aggregates can also comprise materials derived non-naturally, but with the properties of aggregates to allow it to be substituted in place of primary aggregates. These typically comprise of two main types; recycled aggregate and secondary aggregate.

5.7 Recycled aggregates are materials that are derived from construction, demolition and excavation waste that has been reprocessed to provide a

⁵⁰ British Geological Survey – Construction aggregates: www.bgs.ac.uk/downloads/start.cfm?id=1355

product suitable for use as a substitute for primary aggregate. Meanwhile, secondary aggregates are materials that are usually by-products of industrial processes which can then be re-used as a construction aggregate.

Aggregate Supply

5.8 A steady and adequate supply of construction aggregate is required to ensure that market needs in Central and Eastern Berkshire are met in order to support continued economic development and prosperity. The aggregate required can be made up of different sources such as recycled materials, imported mineral products or extracted sand and gravel from either the sea or land.

5.9 Sales figures are monitored annually by minerals planning authorities and provide a basis for estimating the needs and requirements of Central and Eastern Berkshire.

Planning future aggregate supply

5.10 Sales data is usefully compared with that on past aggregate consumption. Aggregate consumption figures can be calculated from data published by the Department for Communities and Local Government (DCLG) every four years as part of the Aggregate Mineral survey for England and Wales undertaken by the BGS.

Table 5.1: Total consumption of Primary Aggregate in Berkshire, 2009 and 2014 (Thousand tonnes, Tt)

Berkshire	Land Won Sand and Gravel		Marine Sand and Gravel		Total sand and gravel		Crushed Rock		Total Primary Aggregates	
	2009	2014	2009	2014	2009	2014	2009	2014	2009	2014
Imports (Tt)	298	353	98	152	396	505	861	1,161	1,257	1,666
Consumption* (Tt)	807	601	98	152	905	753	875**	1,161	1,780	1,914
Consumption %	45.3%	31%	5.5%	8%	50.8%	39%	49.20%	61%	100%	100%
Imports/Consumption %	36.93%	58.7%	100%	100%	43.76%	67%	98.40%	100%	71%	87%

Source: Collation of the results of the 2009 and 2014 Aggregate Minerals survey for England & Wales (Department for Communities and Local Government).

*Consumption is determined by total sold internally plus total imported.

** The difference in import and consumption amounts are due to known historic inaccuracies in the 2009 National Collation data and is not considered significant. There is no reported evidence of further flows of crushed rock from Berkshire to other areas.

- 5.11 The comparison of 2009⁵¹ and 2014⁵² data in Table 5.1 indicates a trend for a reduction in consumption of land-won sand and gravel but an increase in sales. Consumption of marine-won sand and gravel and crushed rock have increased – both of which are imported aggregates.
- 5.12 This shows an overall increase in supply of aggregate to Berkshire. There is no evidence to suggest that this does not reflect the situation in Central and Eastern Berkshire. Unfortunately, comparable data is not available for 2005, and the short time period does not suggest a reliable trend particularly, taking into account the recession.
- 5.13 Nationally, the sales of primary aggregates have shown a general trend of decline with sales in England falling from 207,772 tonnes per annum (tpa) in 1973 to 122,864 tpa in 2014⁵³.
- 5.14 However, there have been signs of recovery with a 25% increase in total primary aggregate sales between 2009 and 2014 in Berkshire which reflects the situation in the South East⁵⁴.
- 5.15 The SEEAWP Annual Report (2018) states that there has been very little change in the pattern of supply in the South East over the last 10 years (see Figure 5) which suggests that there have been no dramatic changes in sources of supply⁵⁵.

⁵¹ Collation of the results of the 2009 Aggregate Minerals survey for England and Wales: www.gov.uk/government/uploads/system/uploads/attachment_data/file/6366/1909597.pdf

⁵² Collation of the results of the 2014 Aggregate Minerals survey for England and Wales: www.gov.uk/government/uploads/system/uploads/attachment_data/file/563423/Aggregate_Minerals_Survey_England_Wales_2014.pdf. The 2014 survey was delayed due to DCLG funding reviews.

⁵³ Collation of the results of the 2014 Aggregate Minerals survey for England and Wales (BGS, DCLG, LCGW, 2016) – Table D1:

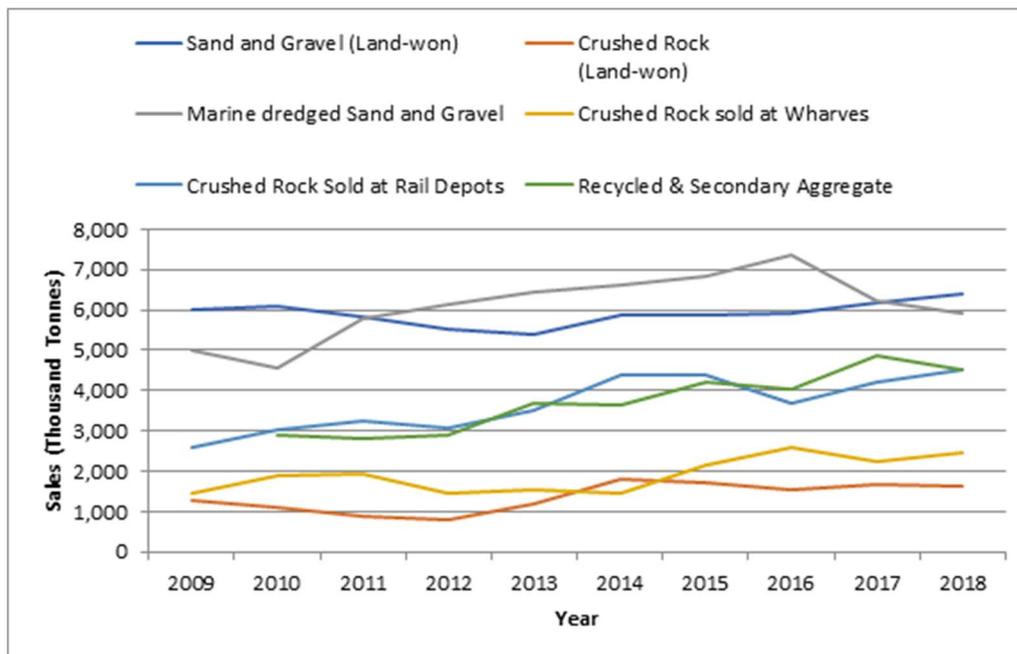
www.gov.uk/government/uploads/system/uploads/attachment_data/file/563423/Aggregate_Minerals_Survey_England_Wales_2014.pdf

⁵⁴ Collation of the results of the 2014 Aggregate Minerals survey for England and Wales (BGS, DCLG, LCGW, 2016):

www.gov.uk/government/uploads/system/uploads/attachment_data/file/563423/Aggregate_Minerals_Survey_England_Wales_2014.pdf

⁵⁵ SEEAWP Annual Report 2018 (Jan 2020): <https://documents.hants.gov.uk/see-awp/SEEAWP-annual-report-2018.pdf>

Figure 5: Aggregates sales in South East England 2009-2018



Source: SEEAWP Annual Report (2018)

Recycled and Secondary Aggregates

- 5.16 Recycled and secondary aggregates can be used as a substitute for some land-won sharp sand and gravel extraction, providing a more sustainable source of supply. These have combined benefits of reducing the need for land-won (or marine aggregate) and reducing the amount of waste requiring disposal by landfill.
- 5.17 When used locally, recycled aggregate can reduce the impact of transport and cut carbon emissions.

Sources of recycled and secondary aggregates in Central and Eastern Berkshire

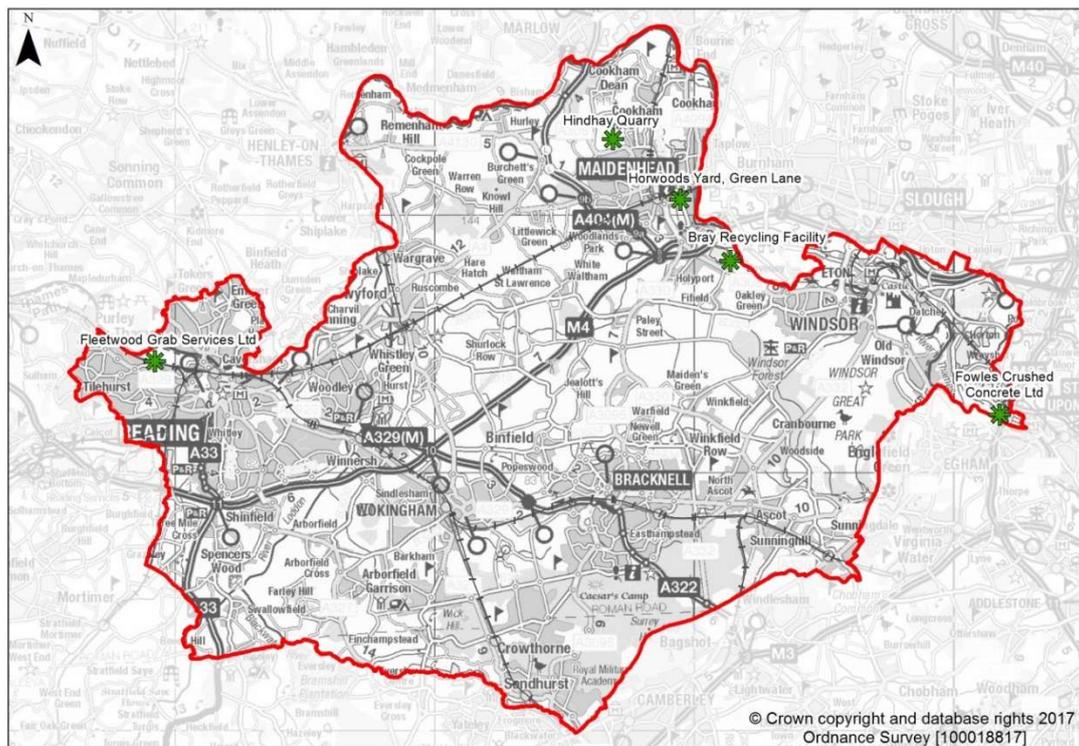
- 5.18 Recycled aggregates are those derived from construction, demolition and excavation activities that have been reprocessed to provide materials or a product suitable for use within the construction industry. It includes materials such as soils and subsoil, concrete, brick or asphalt for re-use (rather than disposing of it). It can also comprise other secondary aggregate which is slightly different to the sources noted above and are usually by-products of other construction or industrial processes. For example, the production of Incinerator Bottom Ash (IBA) at energy recovery facilities, a by-product of the incineration process, can be used as a secondary aggregate for road construction. Additional secondary aggregate includes spent railway ballast, recycled glass, plastics and rubber (tyres).

5.19 Highway maintenance work has the potential to comprise a relatively large source of recycled aggregate through recycled road planings, asphalt, concrete kerbs and soils. Further work is required to gain a better understanding on what level of contribution this source of material could provide.

5.20 A significant amount of recycled and secondary aggregate is processed on development and construction sites, but an increasingly large amount is processed at free standing sites or sites located within existing minerals and waste activities such as mineral extraction, waste transfer, materials recovery and landfilling. Sites producing recycled aggregate and operational in 2018 are shown in Figure 6.

5.21 There is no secondary aggregate produced within Central and Eastern Berkshire. The only secondary aggregate produced within the wider Berkshire area is the bottom ash produced by Lakeside Energy from Waste plant.

Figure 6: Location of recycled aggregate sites in 2018



Current capacity for recycled aggregate in Central and Eastern Berkshire

5.22 Table 5.2 outlines capacity data on recycled aggregate sites within the Plan area. The 'capacity' figures used are the capacity figures for the site and therefore, do not necessarily represent the capacity to produce recycled aggregate. The capacity figure has been provided as part of recent Aggregate

Monitoring (AM) surveys (the most recent being 2018) or Environment Agency permit information where a response was not received.

Table 5.2: Recycled aggregate capacity in 2018

Facility Name	Unitary Authority	Recorded⁽¹⁾ Capacity (tonnes) 2018	Estimated⁽²⁾ Permanent Capacity (tonnes) 2018
Hindhay Quarry	Windsor & Maidenhead	50,000	0
Bray Quarry	Windsor & Maidenhead	25,000	25,000
Horwoods, Kimber Lane	Windsor & Maidenhead	4,800*	4,800*
Fowles Crushed Concrete Ltd	Windsor & Maidenhead	125,000*	5,000
Fleetwood Grab Services	Reading	75,000*	5,000
Total		279,800	40-45,000

Source: (1) AM2018 returns or EA Permit (*) where no return information available.

(2) Permanent capacity only and likely operational capacity.

5.23 The permission at Hindhay is temporary. The operational capacity at Fleetwood and Fowles is likely to be similar to Horwoods as the capacities provided in EA Permits are given as ranges or are for all activities on a site. Should this be the case, the reality of permanent aggregate recycling capacity is likely to be approximately 45,000 tonnes.

5.24 In 2018, permission was granted for aggregate recycling at Riding Court Farm/Datchet Quarry⁵⁶. The Decision Notice was issued in January 2019 and allows up to 30,000 tonnes per annum which is time-limited to the life of the Quarry.

Production and sales of recycled aggregate in Central and Eastern Berkshire

5.25 There is no reliable or comprehensive data on production or use of recycled aggregates. Historically, production and sales of recycled and secondary aggregate have been recorded on a Berkshire county-wide level. The sales figures of the recycled and secondary aggregate in Berkshire for the most recent 10-year period, 2009-2018 are shown in Table 5.3.

⁵⁶ Riding Court Farm/Datchet Quarry Application: <http://publicaccess.rbwm.gov.uk/online-applications/applicationDetails.do?keyVal=P5ZAR3NIJW700&activeTab=summary>

Table 5.3: Recycled and Secondary aggregate sales in Central and Eastern Berkshire, 2009-2018 (Thousand tonnes, Tt)

Year	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Last 10 yr average	Last 3 yr average
Berkshire	234	n/a	200	320	404	408*	400*	498	450	459	417	469
Central & Eastern Berkshire						85	103	128	131	138		132

Source: Aggregate Monitoring Surveys, 2008-2017

*Figures quoted are from the South East Aggregate Monitoring Report (2014 & 2015).

5.26 Sales in Berkshire increased by 2% in 2018 although this sales figure is still greater than all other recorded annual sales figures for the past 10 years other than in 2016.

5.27 Sales data for the Central and Eastern Berkshire area is only available for a five-year period and which indicates a trend of 132 Tt per year. The Central and Eastern Berkshire sales represent an average of 25% of the Berkshire Total. If this average was applied to the Berkshire 10-year sales, this would suggest a 10-year trend of 117 Tt per year for Central and Eastern Berkshire.

5.28 Central and Eastern Berkshire imports inert waste from a number of neighbouring authorities such as Buckinghamshire, Slough and Surrey. Although not all of the waste will be suitable for aggregate recycling and in some cases this material is used for inert fill.

5.29 It should be noted that due to difficulties in obtaining comparable data on aggregate recycling, the South East England Aggregate Working Party is working towards an agreed methodology.

5.30 The projected forecast for inert waste arisings (which includes C&D) and management requirements during the Plan period are set out in the *Waste: Background Study*⁵⁷.

Local uses and markets for recycled aggregate

5.31 The local supply of alternative aggregate in Central and Eastern Berkshire is recycled aggregate from construction and demolition waste. West Berkshire is the main processor of recycled aggregates in the Berkshire area, with material principally arising in Reading⁵⁸.

⁵⁷ Waste Background Study: www.hants.gov.uk/berksconsult

⁵⁸ Berkshire Local Aggregate Assessment 2014 & 2015 (Atkins, 2016).

- 5.32 Supplies of recycled aggregate are variable. This is principally due to the level of local activity in the construction industry. During the regeneration of Bracknell Town Centre, the material resulting from the demolition of buildings was crushed and re-used on the site.
- 5.33 Estimates on the utilisation of recycled and secondary aggregate have to be treated with caution. Secondary and recycled aggregate do not currently substitute for primary aggregates in structural uses, only in lower specification construction uses like sub-base in roads and car parks. Of particular relevance is that secondary and recycled aggregate does not generally provide a suitable alternative to sand and gravel aggregates, either sharp sand and gravel (particularly for concrete) or building sand. The main use is to provide a fill that substitutes for the lower quality sand and gravel produced within Central and Eastern Berkshire.

Future provision

- 5.34 The Mineral Products Association reports that the use of recycled and secondary materials in the Great Britain aggregates market has increased rapidly. The proportion of total aggregates supplied from recycled and secondary sources has risen from 10% in 1990 to 29% in 2016⁵⁹. The Mineral Products Association undertook aggregate scenarios to determine potential future growth (see Appendix 2 for more details). The study concluded that recycled and secondary materials are likely to continue to make a significant contribution to supply (30%) but this is not expected to continue to grow significantly⁶⁰.
- 5.35 In 2015, it was concluded that there was sufficient capacity in Berkshire for the processing of recycled aggregates, although some is at sites with temporary permissions⁶¹. The SEEAWP Annual Report 2018 also suggests a capacity margin (headroom) of around 57% at recycled and secondary aggregate sites but this also includes temporary sites⁶². The capacity information gained through the AM survey returns and EA permits suggests that there is sufficient capacity to treat the arisings derived from the WDI within the Plan area currently. However, this information does not represent the reality of the situation and the significant shortfall in permanent capacity.

⁵⁹ The Mineral Products Industry at a Glance (MPA, 2018):

<https://mineralproducts.org/documents/Facts-at-a-Glance-2018.pdf>

⁶⁰ Long-term aggregates demand & supply scenarios, 2016-2030 (MPA, 2017):

https://mineralproducts.org/documents/MPA_Long_term_aggregates_demand_supply_scenarios_2016-30.pdf

⁶¹ Berkshire Local Aggregate Assessment 2014 & 2015 (Atkins, 2016)

⁶² SEEAWP Annual Report 2018 (Jan 2020): <https://documents.hants.gov.uk/see-awp/SEEAWP-annual-report-2018.pdf>

5.36 The NPPF⁶³ states that as far as practicable, Local Plans should ‘*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 mineral supplies indigenously*’.

5.37 As information regarding existing capacity is unreliable, it is difficult to determine the level of need through the Plan period. Therefore, there is a need to encourage additional sites in the Plan area and the JMWP should seek to maintain the existing capacity at standalone sites (as temporary sites are likely to be permitted in relation to another development such as a large regeneration site or extraction site) but not limit additional capacity.

Crushed rock

5.38 The geology of Central and Eastern Berkshire means that it does not have its own source of crushed and hard rock minerals such as limestone. Therefore, those minerals that cannot be derived from within the Plan area have to be imported by rail and road in order meet local needs.

Sources of crushed rock

5.39 The movement of crushed rock is tracked in the Aggregate Minerals (AM) survey. Table 5.4 shows the sources of crushed rock consumed in Berkshire in 2009 and 2014. The dominant source of crushed rock for Berkshire is Somerset which has some 400 million tonnes of approved reserves (equivalent to 29.9 years)⁶⁴. While not all the quarries in Somerset have rail connections, those that do form a significant proportion. Provided Somerset maintain its productive capacity, it is estimated that there are sufficient reserves available to supply on-going market demand.

Table 5.4: Sources of crushed rock consumed in Berkshire (thousand tonnes)

Source	2009		2014	
	Proportion	Tonnage	Proportion	Tonnage
Somerset	83%	726.25	70-80%	n/a
North Somerset	10 - 5%	87.5 – 43.75	1-10%	n/a
And the rest	Between 5% and Less than 1%-	n/a	Between 10% and Less than 1%	n/a

Source: BGS

⁶³ National Planning Policy Framework (Para. 204): https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/779764/NPPF_Feb_2019_web.pdf

⁶⁴ Somerset LAA 2016: www.somerset.gov.uk/EasySiteWeb/GatewayLink.aspx?allId=112822

Crushed rock flow to / from Central and Eastern Berkshire

5.40 The importation and consumption of crushed rock within Berkshire is reported in the Aggregate Monitoring (AM) reports. As explained, data is only available for the wider Berkshire area. The 2014 AM survey for England and Wales⁶⁵ identifies that 1,161,000 tonnes of crushed rock were imported into Berkshire and that the same amount of crushed rock was also consumed within Berkshire which suggests no onward movement of crushed rock in the former county area.

5.41 Table 5.1 suggests that there is an increasing demand for crushed rock within the Berkshire area. This assumption is supported by the sales from rail depots figures which for reasons of commercial confidentiality are reported with rail depot sales figures for Hampshire (see Table 5.5. below).

Table 5.5: Sales from Berkshire and Hampshire Rail Depots (million tonnes)

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	10-year Av.	3-year Av.
Sales	1.1	1.1	1.2	1.2	1.1	1.2	1.6	1.5	1.7	2.0	1.4	1.8

Source: South East Aggregate Monitoring Report 2018

Current capacity for crushed rock imports

5.42 There is currently no rail depot to receive crushed rock imports within Central and Eastern Berkshire. As such, it is assumed that the area is served predominately by the rail depots in West Berkshire. However, anecdotal evidence⁶⁶ suggested that some crushed rock was supplied via road on a back-haulage basis.

5.43 As the current sales at the rail depots (as shown in Table 5.5) are currently below earlier amounts, it would suggest that there is existing capacity at the rail depots.

Uses and markets for crushed rock in Central and Eastern Berkshire

5.44 Crushed rock imports into Berkshire are mainly used for roadstone, rail track ballast, concrete aggregate and amourestone as well as other graded aggregate and constructional fill.

⁶⁵ Collation of the results of the 2014 Aggregate Minerals survey for England and Wales: www.gov.uk/government/uploads/system/uploads/attachment_data/file/563423/Aggregate_Minerals_Survey_England_Wales_2014.pdf. Tables 10 (imports) and 11 (consumption).

⁶⁶ Responses to Central & Eastern Berkshire – Joint Minerals & Waste Plan: Issues & Options consultation.

Future provision

- 5.45 The existing aggregate rail depots supplying the Plan area have sufficient capacity for the future. Central and Eastern Berkshire is fully reliant on their continued operation and any threat to this provision would have a significant impact.
- 5.46 The West Berkshire Local Aggregate Assessment (LAA)⁶⁷ identifies that a large proportion of the aggregate sold from the rail depots at Theale is then exported out of West Berkshire by road. The LAA also states that there is sufficient capacity at the rail depots for an increase in demand should this occur in the future.
- 5.47 The safeguarding of the rail depots at Theale, West Berkshire will be important for Central and Eastern Berkshire to ensure a supply of crushed rock, unless a suitable rail depot is located within the Plan area.

Marine-won sand and gravel

- 5.48 Marine-won sand and gravel is a minor source of aggregate for the wider Berkshire area.
- 5.49 Berkshire's level of imported marine sand represented 5.5% of the total primary aggregated consumed in 2009 and this rose to approximately 8% in 2014⁶⁸. Imports into Berkshire in 2009 were 98,000 tonnes which equated to nearly 8% of the total primary aggregates. This rose to 9% in 2014 with 152,000 tonnes of imported marine aggregate.

Sources of marine aggregate

- 5.50 The AM2014 Aggregate Mineral (AM) survey collation data provides details the sources of the imported marine sand and gravel (see Table 5.6).

⁶⁷West Berkshire Local Aggregate Assessment 2018 (April 2019):
<https://info.westberks.gov.uk/CHttpHandler.ashx?id=46310&p=0>

⁶⁸ Collation of the results of the 2014 Aggregate Minerals Survey for England and Wales:
www.gov.uk/government/uploads/system/uploads/attachment_data/file/563423/Aggregate_Minerals_Survey_England_Wales_2014.pdf

Table 5.6: Sources of marine sand and gravel consumed in Berkshire 2014

Source	Proportion
Greater London	60-70%
Hampshire	20-30%
Medway	10-20%
Kent	1-10%
West Sussex	<1%
Total	152 (thousand tonnes)

Source: BGS

5.51 Table 5.6 shows that the main source of material is from Greater London which suggests that this is marine dredged material that has been landed at London wharves, and probably transported by rail. The second greatest source is Hampshire. This is material that will have been landed at Hampshire's wharves. It is likely that this material will have travelled into Berkshire by road and/or via rail depots at Theale or Woking.

Future provision

5.52 There is no evidence to suggest that marine sand and gravel imports are likely to cease but safeguarded wharves in London and Southampton are threatened by encroachment and desired redevelopment by other forms of development such as housing.

5.53 The current marine sand and gravel import figures suggest a marginal increase in their role in total primary aggregate supply. However, although it is not possible to determine the exact level of demand in Central and Eastern Berkshire, it is important that this is considered within the wider supply options.

5.54 Any additional provision would preferably be via rail to limit road movements. Wharf capacity to serve Central and Eastern Berkshire, should be safeguarded. However, a recent survey⁶⁹ suggests that Hampshire's wharves are operating at 85% of capacity which would indicate that there is little headroom to accommodate future growth in demand.

Land-won sand and gravel

5.55 Land-won sand and gravel provides a significant source of the sand and gravel construction aggregate used in Central and Eastern Berkshire. Indeed, it provides the only source of soft sand (building sand) as this cannot currently be substituted by alternative materials.

⁶⁹ Hampshire LAA 2018: <https://documents.hants.gov.uk/planning-strategic/minerals-waste-sites/2018monitoringreport.pdf>

Local uses, sales and markets

- 5.56 Sand and gravel are important to the continued economic prosperity of Central and Eastern Berkshire and the wider Thames Valley which are subject to major growth pressures. A steady and adequate supply of aggregate is required to enable the development of new houses, schools, offices, to maintain and improve existing building stock and to service infrastructure and roads. Locally produced sand and gravel is an essential element to overall aggregate supply.
- 5.57 Uses of sand and gravel across Central and Eastern Berkshire may include its general application as an aggregate, as a material to make concrete, concrete products or cement, in other building material uses as a constructional base material or fill. Unwashed or as-raised sand and gravel is commonly used as construction fill material and also helps for resurfacing tracks and paths. This material is often referred to as 'hoggin' and contains the clay content which helps act as a binding agent.
- 5.58 Sand and gravel may also have a number of other uses such as roofing shingles, on icy roads in the winter, for glass making, for railroad ballast, for water filtration and for household gardening.
- 5.59 'Soft sand' is an important mineral resource with specific applications; such as asphalt, mortars, plaster and top dressing, all of which sharp sand and gravel and other aggregate materials are unsuitable.
- 5.60 Patterns of sand and gravel supply largely reflect the location of mineral resources. It can be assumed that the markets for sand and gravel generally support the major towns within Central and Eastern Berkshire as well as other parts of the Thames Valley.

Current production in Central and Eastern Berkshire

- 5.61 The main economic mineral deposit worked from the land within Central and Eastern Berkshire is sand and gravel.
- 5.62 The quarrying of sand and gravel in Berkshire has historically been focussed on the Kennet valley, and between Reading and Newbury. In addition, there have been concentrations of workings north and south of Maidenhead, and south of Slough.

Extraction locations

- 5.63 The quarries that have approved reserves for extraction of sharp sand and gravel and soft sand in Central and Eastern Berkshire within the last 10 years

are listed in Table 5.7. The shading indicates the years that the quarries were operational.

5.64 Those Active sites with permission in 2018 are shown in Figure 7.

Figure 7: Active sand and gravel sites in Central and Eastern Berkshire in 2018

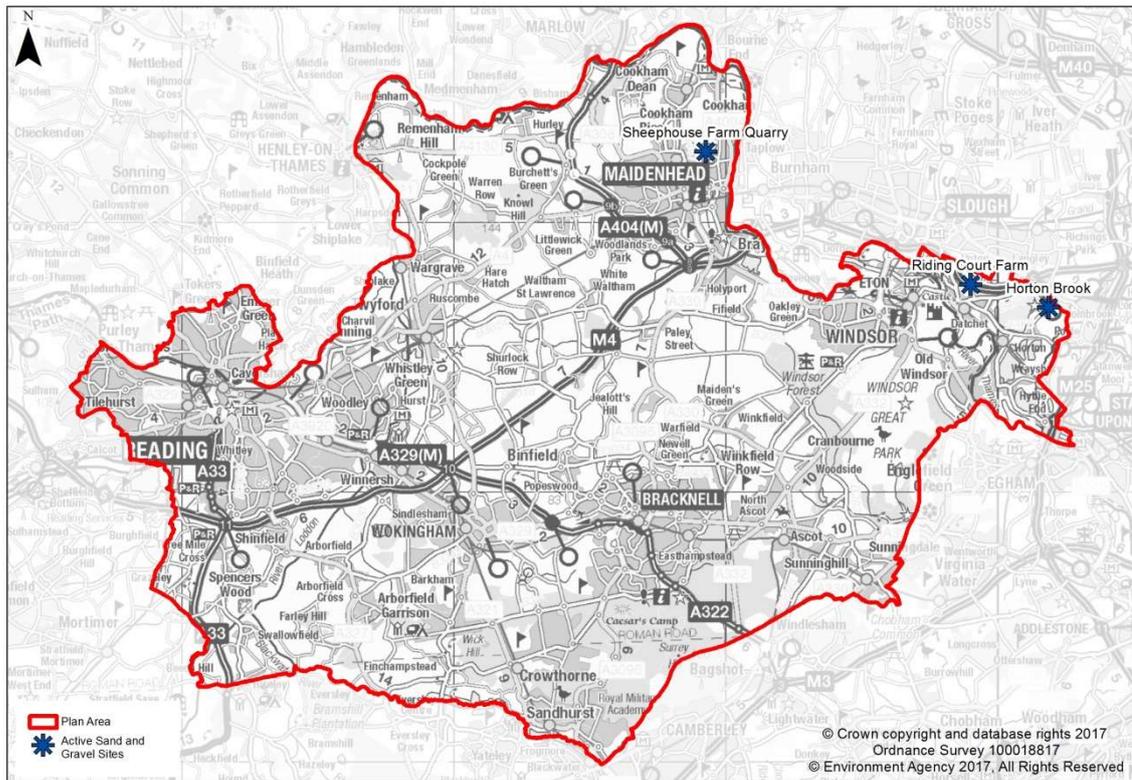


Table 5.7: Permitted sand and gravel quarries in Central and Eastern Berkshire

Quarry	UA	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Horton Brook Quarry	RBWM										
Kingsmead Quarry (Closed)	RBWM										
Sheephouse Farm Quarry	RBWM										
Bray Quarry (Closed)	RBWM										
Riding Court Farm	RBWM										
Eversley Quarry* (Closed)	Wok										
Star Works (inactive)	Wok										

Source: Berkshire LAA 2014, 2015, 2016, 2017, 2018 and 2019

*Also known as Fleethill Farm

5.65 Star Works is inactive but retains approved reserves. An application was granted for an extension at Horton Brook Quarry⁷⁰ in 2018 due to greater reserves being identified. Poyle Quarry was granted permission in January 2019⁷¹ and as such has not been included in Figure 7.

5.66 In 2017, an application was submitted for extraction at Bridge Farm, Wokingham⁷² but this was subsequently refused in 2019. Permission was granted at Water Oakley (known also as 'Land south of Windsor Road'), Windsor & Maidenhead⁷³ in 2019 (subject to legal agreements).

⁷⁰ Horton Brook Quarry Application: <http://publicaccess.rbwm.gov.uk/online-applications/applicationDetails.do?keyVal=P0UNO2NIKKC00&activeTab=summary>

⁷¹ Poyle Quarry Application: <http://publicaccess.rbwm.gov.uk/online-applications/applicationDetails.do?keyVal=OYZQ75NI0QY00&activeTab=summary>

⁷² Bridge Farm Application: <https://planning.wokingham.gov.uk/FastWebPL/detail.asp?AltRef=170433&ApplicationNumber=&AddressPrefix=&Postcode=&KeywordSearch=bridge+farm&Submit=Search>

⁷³ Water Oakley (Known as Land South of Windsor Road) 18/03167/MINW: <http://publicaccess.rbwm.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=PHF8GVNIOC00>

- 5.67 Extraction sites have not been operational within the administrative area of Slough Borough Council for 10 years.
- 5.68 Bray, Sheephouse Farm, Horton Brook, Riding Court Farm, Water Oakley and Star Works are located in the Green Belt.
- 5.69 The permitted reserves in Central and Eastern Berkshire at 31 December 2018 were **6,053,000 tonnes**⁷⁴.

Resources

- 5.70 Sand and gravel resources data for Central and Eastern Berkshire is complicated due to historic reporting at a Berkshire-wide level.
- 5.71 The Review of Minerals Supply prepared for SEERA by the BGS in 2006⁷⁵ included assessments of the available resources (i.e. aggregate deposits that were not already sterilised by surface development) in mineral planning authority areas in the South East. The figures were categorised according to whether the resources fell within an area subject to one or more of the following national or international environmental designations which indicate special care is needed to avoid damaging the environment: Sites of Special Scientific Interest (SSSIs), National Nature Reserves (NNRs), National Parks, Areas of Outstanding Natural Beauty (AONBs), Special Protection Areas (SPAs) or Special Areas of Conservation (SACs). The resources that were not in any of these designated areas were referred to as ‘unconstrained’ reserves. The assessments were undertaken by reference to assumed depths of deposits interpreted from local and regional geological knowledge and other considerations.
- 5.72 The resource assessments do not take account of other potential constraints on the availability of these resources for extraction, such as the physical constraints of access, air safety, air quality management areas, proximity to sensitive uses, local nature conservation interests, protected species, water interests, landscape impact, or the physical constraints, such as quality of the reserve and distance from markets. Any conclusions drawn from this resource assessment therefore need to be treated with caution.
- 5.73 The Assessment for the Central & Eastern Berkshire Authorities indicates the amounts of resources of sharp sand and gravel and of soft sand within the plan area, as shown in Table 5.8.

⁷⁴ Aggregate Monitoring (AM) 2018 survey results

⁷⁵ South East England Regional Assembly: South East Plan – Review of Minerals Supply and Demand (BGS, 2006)

Table 5.8: Sharp sand and gravel and soft sand resource assessment in Central and Eastern Berkshire (million tonnes)

Type of mineral/ MPA	Not subject to environmental designation constraint	Subject to one environmental designation constraint	Subject to more than one environmental designation constraint
Sharp sand and gravel			
Bracknell Forest BC	12	0	17
Reading BC	15	0	0
RBWM	195	0	2
Wokingham BC	177	0	0
<i>Total</i>	<i>399</i>	<i>0</i>	<i>19</i>
Soft sand			
Bracknell Forest BC	0	0	0
Reading BC	23	0	0
RBWM	339	0	5
Wokingham BC	183	0	0
<i>Total</i>	<i>545</i>	<i>0</i>	<i>5</i>
Sand & Gravel Total	944	0	24

Source: South East Plan – Review of Minerals Supply and Demand (BGS, 2006) – Tables 5 and 6

5.74 The Replacement Minerals Local Plan for Berkshire⁷⁶ included 13 Preferred Areas (seven in West Berkshire and the others in Reading, the Royal Borough of Windsor & Maidenhead and Slough). The remaining Preferred Areas and yield are set out in Table 5.9.

Table 5.9: Estimated yield of remaining Preferred Areas within Central and Eastern Berkshire (tonnes)

No.	Preferred Area	Authority	Estimated Yield
8	Smallmead, Reading	Reading	240,000
13	Railway land, Kingsmead, Horton	RBWM	135,000
Total Estimated Yield			375,000

Source: Replacement Minerals Local Plan for Berkshire

Aggregate flow to / from Central and Eastern Berkshire

5.75 Information on flows of aggregate between mineral planning authority areas is difficult to obtain, and much of the data is commercially confidential. Information can be extracted from the BGS collation results for the Aggregate Minerals survey. This information is available for 2009 and 2014 but is reported on a

⁷⁶ Replacement Minerals Local Plan for Berkshire (incorporating the Alterations adopted in December 1997 and May 2001 (joint Strategic Planning Unit): www.bracknell-forest.gov.uk/replacement-minerals-local-plan-for-berkshire-2001.pdf

Berkshire-wide level. A further survey is programmed in 2020 to collate the data from 2015 to 2019.

Imports

- 5.76 The market dictates that sand and gravel will be obtained from the cheapest location for that particular material, and mineral planning authority boundaries do not influence the flow of minerals. Where the demand in Central and Eastern Berkshire can be satisfied most efficiently and cost effectively from locations in other areas, such as West Berkshire, Hampshire, Oxfordshire or Buckinghamshire, then it will. This may be due to the specific type or quality that is required only being available in a neighbouring mineral planning authority area, or simply due to the fact that the point of demand is closer to the point of supply somewhere other than in Central and Eastern Berkshire.
- 5.77 The sources of sand and gravel consumed in Berkshire in 2009 and 2014 are shown in Table 5.10. The Table shows that in 2009 and potentially to a greater extent in 2014, of the sand and gravel consumed in Berkshire, just over half of the sand and gravel consumed was from Berkshire and the rest was imported from a range of sources. The largest was Hampshire which has supplied an increasing amount and in 2014 supplied between 10% to 20% of the land-won sand and gravel consumed.

Table 5.10: Sources of Sand and Gravel Consumed in Berkshire in 2009 and 2014 (thousand tonnes)

Source	2009		2014	
	Proportion	Tonnage*	Proportion	Tonnage*
Berkshire	56%	507	40-60%**	240-360
Hampshire	10-15%	9.05-13.5	10-20%	60-120
Wiltshire, Oxfordshire	Between 1% and 5% from each area	n/a	10-20%	60-120
And the rest	Between 10% and Less than 1% from each area	n/a	Between 10% and Less than 1% from each area	n/a
*Where known or proportion of known total				
**Combined percentage of two Berkshire Unitary Authorities both supplying 20-30% each				

Source: BGS

Exports

- 5.78 As with imports, data is only available on a Berkshire level for 2009 and 2014. The principal destinations of Berkshire's sand and gravel in 2009 and 2014 are shown in Table 5.11.

Table 5.11: Destinations of Berkshire’s Sand and Gravel in 2009 and 2014 (thousand tonnes)

Source	2009		2014	
	Percentage	Tonnes	Percentage	Tonnes
Berkshire	61%	509	24%	248
South East	28%	234	52%	548
Elsewhere	11%	92	24%	255
Unallocated	1%	5	0%	0
Total	100%	840	100%	1051

Source: AM2009 and AM2014 Table 9b

5.79 The destination data on sand and gravel shows that of the aggregates sold in Berkshire in 2009, 61% was consumed in Berkshire with the remainder being exported, principally to destinations in the South East and it is assumed by road. The principal destinations within the South East for Berkshire’s sand and gravel were Surrey and Buckinghamshire (including Milton Keynes). Elsewhere the majority of sand and gravel was exported to West London. It is noted that this consumption figure is higher than that suggested in Table 5.1.

5.80 This scenario switches in 2014 with only 24% being consumed within Berkshire and 52% is exported to destinations in the South East. The reasons for this switch are unknown, but it may reflect locations of development pressures at this time.

5.81 Due to data limitations, it is not possible to assess the impact of imports and exports of sand and gravel on Central and Eastern Berkshire.

Identifying future demand

Apportionment

5.82 Historically, mineral planning authorities have had annual apportionments for the quantity of land-won sand and gravel that they are expected to plan for. The sub-regional apportionments were outlined in the Regional Spatial Strategy and were figures for total sand and gravel sales, and therefore related to sharp sand and gravel as well as soft sand.

5.83 The apportionment was not a production target, but a guide to provision required. Sales in Berkshire have generally been below two thirds of the apportionment amount but were less than half between 2006 and 2008. Since 2009, when the apportionment level was reduced to 1.3 million tonnes per annum in the ‘Proposed Changes’ to Policy M3 of the South East Plan, combined sand and gravel sales have once more been about two thirds of the apportionment level, except in 2011, when sales were 85% of the apportionment.

5.84 With the revocation of the Regional Spatial Strategy (South East Plan) minerals policies in March 2013, the apportionment no longer applies.

Past Sales

5.85 The NPPF⁷⁷ states that a steady and adequate supply of aggregates should be planned for by minerals planning authorities through annual Local Aggregate Assessments. These should be based on a rolling average of 10 years sales data and other relevant local information. They should also consider all supply options.

5.86 Minerals planning authorities are also encouraged to use landbanks of aggregate minerals reserves as an indicator of the security of supply and to indicate any additional provisions that may be required. The landbank of at least seven years should be maintained for sand and gravel.

5.87 Berkshire has both sharp sand and gravel deposits and deposits of soft sand. Historically, sales data has been recorded on a Berkshire-wide basis. In order to determine what proportion of the historic sales apply to Central and Eastern Berkshire, sales of West Berkshire⁷⁸ are deducted from the total sales up to 2015 (Slough has not contained any operational sites for the last 10 years).

5.88 Table 5.12 outlines the combined sales of sand and gravel for Berkshire, the assumed output from West Berkshire and the remaining sales data which is the assumed output of the sites within Central and Eastern Berkshire for the period 2009 to 2015. Central and Eastern Berkshire sales figures for 2016, 2017 and 2018 are derived directly from Aggregate Monitoring surveys.

Table 5.12: Comparison of Berkshire's Total Sales of Sand and Gravel and West Berkshire's Output 2009- 2018 (thousand tonnes)

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	10-yr Av.	3-yr Av.
Berkshire (Total)	840	886	1,127	865	792	1,080	902					
West Berkshire	390	275	275	234	202	160	154					
Central & Eastern Berkshire	450	611	852	631	590	920	748	469	491	511	628	490

Source: Berkshire LAA 2014 and 2015, West Berkshire LAA 2018 and AM Survey.

⁷⁷ National Planning Policy Framework (Para. 207):

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/6077/2116950.pdf

⁷⁸ West Berkshire Local Aggregate Assessment 2016:

<https://info.westberks.gov.uk/CHttpHandler.ashx?id=43576&p=0>

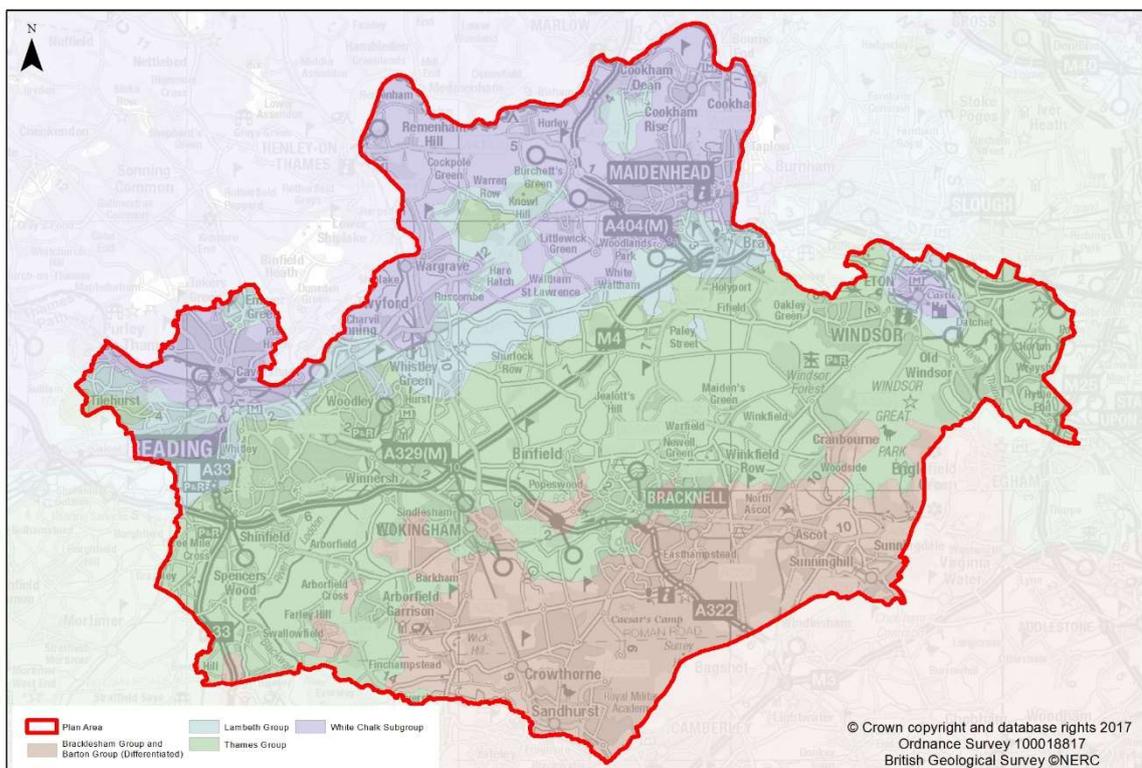
5.89 The increase in the 10-year average (in comparison to the 3-year average) reflects the increase in sales between 2013 and 2014 in Central and Eastern Berkshire (from 590 Thousand tonnes per annum (Ttpa) to 920 Ttpa respectively) but with a drop in 2015 and 2016 to 469 Ttpa. The increase in sales in 2014 can largely be attributed to the re-opening of one Berkshire's quarries that year. The drop in sales in 2016 is likely to be due to the closure of Eversley Quarry and Kingsmead Quarry. However there has been some recovery in sales since 2017.

5.90 Appendix 2 outlines evidence for future aggregate demand. Construction and economic forecasts both suggest growth and there are already a number of national and local development projects which all indicate an increase in need for construction aggregates.

Soft sand

5.91 Soft sand' is generally fine-grained sand in which the individual grains are well-rounded, which provides a relatively soft texture and free-flowing nature to the material and is used in products which need to be easily worked, such as mortars and plaster. These are collectively known as 'building sands', and this term is used interchangeably with soft sand.

Figure 8: Bedrock geology of Central and Eastern Berkshire



- 5.92 In Central and Eastern Berkshire soft sand is found, as in the case of neighbouring West Berkshire, within the Reading Formation (formerly known as the Reading Beds), within the Lambeth Group (see Figure 8). This is part of the Palaeogene deposits that are between 23 and 66 million years old. The Reading Formation is variable in the area being several metres thick comprising silty, clays and sands. The soft sand resources are all ‘bedrock’ sands, that are distinct from the more recent, superficial ‘sharp’ sands and gravels of Quaternary age, which sometimes overlie the bedrock deposits.
- 5.93 Local Aggregate Assessments for Central and Eastern Berkshire note that the soft sand resources in the Plan area are ‘generally poor quality’. The Star Works quarry, Knowl Hill, retains approved reserves, although these may not be worked. There has also been some incidental extraction at Kingsmead Quarry, Horton, which is now closed.
- 5.94 The current adopted Minerals Local Plan for Berkshire (2001)⁷⁹ did not allocate preferred areas for soft sand as the material was too variable and there was a lack of information on suitable deposits.
- 5.95 Due to an absence of sales data, an assessment was carried in 2018 which examined four scenarios for estimating the future building sand requirement within Central and Eastern Berkshire throughout the Plan period. The result suggested that a total requirement of about 1.5 million tonnes (Mt) (79,000 tonnes per year) was required by 2036. This assessment was updated in 2020 which identified an error in the initial assessment and revised the requirement to about 1.0 million tonnes (65,000 tonnes per year). The findings of which are set out in Table 5.13. More detail on how these figures were derived is set out in Appendix 3.

Table 5.13: Estimated soft sand demand for Central and Eastern Berkshire up to 2036

Method	Estimated Demand (Tonnes)	
	Over Plan Period (2020 – 2036)	Per annum (2020 – 2036)
Housing-led demand	680,160	42,510
Population-led demand	573,145	35,822
Trend-led demand	970,752	60,672
Economic-led demand	2,155,126	102,273 – 145,619
Average	1,094,796	65,738

⁷⁹Replacement Minerals Local Plan for Berkshire (Joint Strategic Planning Unit, 2001): <https://www.bracknell-forest.gov.uk/sites/default/files/documents/replacement-minerals-local-plan-for-berkshire-2001.pdf>

5.96 In 2018, the South East had a collective reserve of around 24 Mt of soft sand which equates to 14 years in landbank⁸⁰. Sales in 2018 were 1.82 Mt which was above the 10-year average (1.62 Mt) and 3-year average (1.8 Mt) sales. There was also a reported headroom of 45% capacity at operational sites. In 2018, there were 44 operational soft sand quarries and seven inactive in the South East (although this includes some permitted but not yet operational).

Soft Sand Study

5.97 To gain a better understanding of the soft sand resources, markets and supply options in Central and Eastern Berkshire, a Soft Sand Study⁸¹ has been prepared to inform the Joint Minerals & Waste Plan.

5.98 As part of the Study, discussions were held with major aggregate producers, Cemex, Grundon, Summerleaze, Aggregate Industries and Tarmac, that have or have had an interest in the area. Views were sought about the Reading Formation, opportunities for a new quarry and how the Area has and might be supplied with building sand.

5.99 The general view was that the resource is not of good quality as it is mixed with layers of clay. They confirmed that the soft sand was of a quality not suitable for investment and that sources of supply came from outside Central and Eastern Berkshire

5.100 The most current data available on the movement of sand and gravel is the 2014 Aggregate Monitoring survey which was carried out nationally by the British Geological Survey on behalf of the Department for Communities and Local Government. However, this cannot be used to identify movements of soft sand on this scale, because soft sand is not specially identified and is included within 'sand and gravel'. In addition, the Central and Eastern Berkshire authorities were included within the wider Berkshire area.

5.101 Owing to the lack of available data on the origin of soft sand supplies for Central and Eastern Berkshire, a survey was undertaken. The survey included all builder's merchants in the Plan area and directly enquired about the source of the soft sand they sold. The survey was expanded to include housing developers although the response rate was very poor.

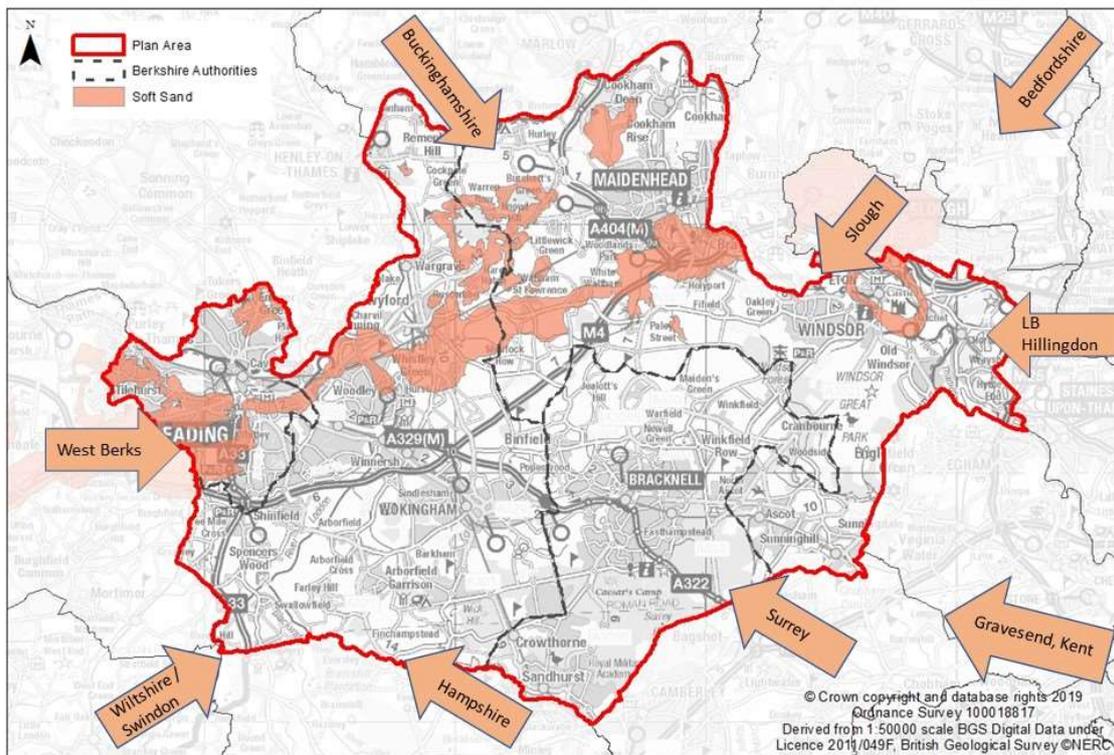
5.102 Figure 9 shows the results of the survey demonstrating the variety of soft sand sources currently (or recently) supplying the Central and Eastern Berkshire area, including:

⁸⁰ South East England Aggregate Working Party – Annual Report 2018 (January 2020).

⁸¹ Soft Sand Study (2020): www.hants.gov.uk/berksconsult

- Bedfordshire
- Buckinghamshire
- Kent
- Hampshire
- Surrey
- West Berkshire (although supply sources have now ceased)
- Wiltshire.

Figure 9: Sources of soft sand supply to Central and Eastern Berkshire



5.103 It should be noted that Slough and Uxbridge (London Borough of Hillingdon) were referenced in the survey. Neither of these locations has soft sand resources but both have aggregates depots. However, the Slough depots only service the immediate aggregate operations (with no onward transportation) and the rail depots at LB Hillingdon are for crushed rock⁸². Therefore, these locations were not considered further. Whilst Gravesend in Kent was also referenced, it is believed that this is in relation to supply in the form of Dry Silo Mortar rather than a specific land-won source.

⁸² London Local Aggregate Assessment (2018): https://www.london.gov.uk/sites/default/files/london_laa_july_2018.pdf

- 5.104 In addition to those identified through the survey, the Soft Sand Study considers Oxfordshire and West Sussex/South Downs National Park as potential sources of supply. There is no present evidence that Oxfordshire is supplying Central and Eastern Berkshire but as a neighbouring authority with reserves, the potential is recognised and is explored further.
- 5.105 The 2014 National Aggregate Monitoring survey identified that West Sussex was supplying Berkshire with sand and gravel. West Sussex produces only limited amounts of sharp sand and gravel (on average as high as 13,585 tonnes per annum)⁸³. As neighbouring West Berkshire has hitherto had its own soft sand resources, it is assumed that the supply from West Sussex is soft sand, and some will have supplied Central and Eastern Berkshire. However, if it was soft sand, this would have been extracted from the South Downs National Park. West Sussex and the South Downs National Park Authority are currently undertaking a 'soft sand review' for their Joint Minerals Local Plan.
- 5.106 The Soft Sand Study identified no clear best option amongst the supply options examined, but there are a number of alternative sources which in the absence of local supply in Central and Eastern Berkshire can help to enable a steady and adequate supply of soft sand during the Plan period (up to 2036). These include:
- Bedfordshire – although this is some distance from Central and Eastern Berkshire it is, according to aggregates operators, already being used. The advantage is that there are adequate reserves, which can be extended.
 - Buckinghamshire – has the advantage of proximity but further information suggests that the resource is fine glacial sand i.e. a sharp sand marketed as a building sand⁸⁴.
 - NE Hampshire – is close to Central and Eastern Berkshire but the current reserve is limited and prospects for the longer-term are limited.
 - SW Hampshire – should be ruled out as a short-term option because of the distance from Central and Eastern Berkshire but could form a longer-term option if a Local Plan allocation is permitted and other resources become constrained.
 - Oxfordshire – does have a large reserve and therefore, could be a potential option for supplying Central and Eastern Berkshire in the longer-term as other resources become constrained.

⁸³ West Sussex Joint Minerals and Waste Plan: <https://www.westsussex.gov.uk/about-the-council/policies-and-reports/environment-planning-and-waste-policy-and-reports/minerals-and-waste-policy/joint-minerals-local-plan/>

⁸⁴ Information provided by operator by Aggregate Working Party meeting and subsequently confirmed by the Mineral Planning Authority.

- Surrey is within reasonable distance of Central and Eastern Berkshire and contains a significant reserve, although there may be issues of supply in the longer term because of landscape designations.
- West Berkshire – has the advantage of being close and would provide a soft sand that is traditionally used in Central and Eastern Berkshire. However, there are no reserves currently available and the landscape designation (e.g. AONB) is a major constraint on further releases unless other options are unrealistic i.e. the ‘exceptional circumstances’ test.
- West Sussex – although this is a current supply there are major potential landscape constraints to longer term prospects.
- Wiltshire – it is assumed that distance would rule Wiltshire out as a short-term option, but this supply option is already active.

5.107 Table 5.14 sets out how these mineral planning authorities can help provide short and longer-term supply options. It is assumed that in the longer-term, as land-won soft sand resources become more limited, the distance material travels will increase making those currently ‘out of range’ more viable.

Table 5.14 - Potential future supply options

	Short-term Supply Options (2020 – 2027)	Longer-term Supply Options (2027 – 2036)
Minerals Planning Authority Areas	<ul style="list-style-type: none"> • Bedfordshire • Buckinghamshire • NE Hampshire • Surrey • <i>West Berks (subject to permissions being granted in the AONB)</i> • West Sussex • Wiltshire 	<ul style="list-style-type: none"> • Bedfordshire • Buckinghamshire • Oxfordshire • SW Hampshire (<i>subject to current Plan allocation being permitted</i>) • <i>West Berks (subject to permissions being granted in the AONB)</i> • Wiltshire

5.108 The Soft Sand Study identifies another element of the market; the use of premixed dry mortars or dry silo mortars (DSM). The limited information that was obtained from the house building companies surveyed in the study showed an increasing use of this material. It is possible that an increasing proportion of the 62,000 – 79,000 tonnes per year building sand market for Central and Eastern Berkshire may be sourced from DSM. DSM requires soft sand resources and whilst this is likely to be from UK land-won sources, some resources maybe sourced from elsewhere, including outside of the UK. Presently, estimates on how much this will be cannot be made and whether this is at the cost of reserves/resources that would supply Central and Eastern Berkshire, or in addition, is unclear.

- 5.109 The 2014 Aggregate Monitoring Survey records marine aggregate as being received in Berkshire from Hampshire and London via rail. Very little marine sand is used in the South East because the industry and wharves are not investing in this material. However, it is used in South Wales and maybe included to some degree in DSM so it might be an option for the longer term. Although it must be questioned if it can truly be used as a replacement for building sand. Furthermore, whilst neighbouring West Berkshire and Slough have rail depots, there are none within Central and Eastern Berkshire. In conclusion, marine aggregate is not considered a viable alternative to land-won soft sand supplies.
- 5.110 Other alternative materials include sharp sand, recycled and secondary aggregates. As previously mentioned, the fine glacial sharp sand in Buckinghamshire is being used as an alternative to soft sand but this is limited. Estimates on the utilisation of recycled and secondary aggregate should be treated with caution. Secondary and recycled aggregate do not currently substitute for primary aggregates in structural uses, only in lower specification construction uses, such as the sub-base in roads and car parks. The main use is to provide a fill that substitutes for the lower quality sand and gravel produced within Central and Eastern Berkshire.
- 5.111 The Mineral Products Association undertook aggregate scenarios to determine potential future growth⁸⁵. The study concluded that recycled and secondary materials are likely to continue to make a significant contribution to supply (30%) but this is not expected to continue to grow significantly.
- 5.112 The Study concludes the following points:
- Opportunities for identifying and developing a soft sand quarry in Central and Eastern Berkshire are very limited.
 - Consideration should be given to creating a mineral safeguarding area (MSA) and supporting policy to protect resources within the Reading Formation.
 - A criteria-based policy should be used to assist the consideration of any proposal that may arise.
 - The estimated demand or requirement for soft sand until 2036 will have to be provided by imports from other mineral planning areas and/or Dry Silo Mortar (see discussion below on alternatives).

⁸⁵ Long term aggregates demand supply scenarios (2016-2030) (Mineral Products Association): https://mineralproducts.org/documents/MPA_Long_term_aggregates_demand_supply_scenarios_2016-30.pdf

- For the purposes of planning, it will need to be assumed that all the soft sand requirement for Central and Eastern Berkshire will have to be supplied by other mineral planning authority areas.

5.113 As there were no reported shortages of soft sand supplies in Central and Eastern Berkshire, the Study suggests that it can be assumed that the current patterns and sources of soft sand appear to be meeting the requirements in the Plan area.

5.114 The Study recognises that whilst Central and Eastern Berkshire cannot depend on indigenous resources, there are a number of suitable supply options available and is not dependent on any one source. This is fortunate as several of the current sources (such as West Berkshire, Hampshire, Surrey and West Sussex) have landscape (and other) constraints which may impact on future supply and other sources of supply will need to address any shortfall.

5.115 The Study recommends that a Statement of Common Ground is prepared with the relevant mineral planning authorities. These authorities will need to recognise the existing movements of soft sand and in order to continue the supply, take into consideration the soft sand needs of Central and Eastern Berkshire in their plan-making, as required by the Planning Policy Guidance (paragraph 60)⁸⁶. In the event supply patterns cannot be maintained alternatives will be explored under the Duty to Cooperate in the preparation of Plans.

5.116 The South East mineral planning authorities have worked collectively to prepare a Position Statement to establish the baseline situation regarding soft sand and supply and the wider supply issues which would need to inform consideration of exceptional circumstances.

Landbank

5.117 The landbank is a measure of the permitted reserves of mineral expressed in the number of years that the reserves would provide production for at the apportionment or other given rate. It is a theoretical measure of the life of the combined reserves assuming they can be worked at a consistent rate across the period. In practice, reserves will be unevenly distributed between quarries and some quarries will run out of reserves before others. A large amount of reserve in a quarry with only a low production rate is notably less available to the landbank than equivalent reserves in a high producing quarry.

⁸⁶ Planning Policy Guidance Minerals (2014): paragraph 60
<https://www.gov.uk/guidance/minerals#planning-for-aggregate-minerals>

5.118 The NPPF⁸⁷ requires mineral planning authorities to make provision for the maintenance of a landbank of at least seven years for sand and gravel. Reserves of sand and gravel in Central and Eastern Berkshire with planning permission for extraction (permitted reserves) at 31st December 2018 were **6,053,000** tonnes.

5.119 Star Works Quarry in Wokingham Borough had a reserve at the end of December 2018 of 196,000 tonnes of soft sand. However, the inactive quarry will require approval of working conditions before any extraction can proceed, and therefore it cannot be included in the total permitted reserves.

5.120 Therefore, the total permitted reserves are 5,857,000 tonnes. Local Aggregate Assessment for the period 2018, determined the LAA Rate as 0.628 million tonnes⁸⁸. Based on the 2018 LAA rate the landbank for sand and gravel is 9.3 years (see Table 5.15).

Table 5.15: Central and Eastern Berkshire sand and gravel landbanks (Thousand tonnes, Tt)

	Permitted Reserve (Tt)	Landbank based upon 10yr average sales between 2009-2018 (years)	Landbank based upon 3yr average sale between 2016-2018 (years)	Landbank based on 2018 LAA Rate
Total Sand & Gravel	5,857	9.3	12.0	9.3

Source: Aggregate Monitoring survey data.

5.121 The NPPF requires mineral planning authorities to ensure (inter alia) that large landbanks bound up in very few sites do not stifle competition and provide for a steady and adequate supply of aggregates.

5.122 The calculation of the landbank is not necessarily an accurate reflection of the ability of quarries to collectively supply the construction industry, given that Sheephouse Farm has a large reserve and has effectively been mothballed in recent years. However, discussions⁸⁹ with the operator indicate that activity on the site is likely to increase in the near future and the remaining reserves extracted.

⁸⁷ National Planning Policy Framework (Para. 207) - https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/779764/NPPF_Feb_2019_web.pdf

⁸⁸ Central and Eastern Berkshire – Local Aggregate Assessment 2019: www.hants.gov.uk/berksconsult

⁸⁹ Discussions held with the operator (Summerleaze) as part of the Draft Joint Minerals & Waste Plan Consultation (September 2018).

Future provision of sand and gravel

- 5.123 The proposed Plan period is up to 2036. If the LAA rate is projected forward from 2018 to 2036 a total of 11.304 Mt of sharp sand and gravel would be required over the course of the Plan period. Current permitted reserves for Central and Eastern Berkshire are 5.857 Mt (not including Star Works Quarry). This means that there is a total requirement of 5.447 Mt of sharp sand and gravel (0.628 Mt per annum).
- 5.124 A number of Preferred Areas remain undeveloped from the *Replacement Minerals Local Plan for Berkshire*⁹⁰. There is no certainty that these sites would ever be worked. A number of these are located within West Berkshire, but others are located within Central and Eastern Berkshire and Slough.
- 5.125 The JMWP includes sand and gravel allocations which total a provision of 0.4 Mt (see Table 5.16). In addition, Poyle Quarry was granted permission in January 2019 which will provide 0.8 Mt. Water Oakley (Land south of Windsor Road) was permitted in December 2019 (subject to legal agreements) which includes 1.7 Mt. Neither of these permissions are included in the Reserves at 31st December 2018. This means there is a shortfall of 2.5 Mt in total provision.

Table 5.16: JMWP Sand and Gravel Allocations

Site Name	Location	Authority	Proposal	Annual Throughput	Estimated Date of extraction commencing
Horton Brook and Poyle Quarry Extension (MA1)	Horton	RBWM	150,000 tonnes sand and gravel	150,000 tonnes	2027
Poyle Quarry Extensions (MA2)	Horton	RBWM	250,000 tonnes sand and gravel	150,000 tonnes	2025

- 5.126 Each of the existing operations and allocations include an annual throughput which outlines the rate at which the site will deplete. Figure 10 shows the rate of depletion (Total Aggregate Output) of the allocations based on the estimated commencement date of the proposals as well as the remaining reserves of the existing operations. This is plotted against the planned provision rate of 0.628 Mt (Target Aggregate Output). Figure 10 demonstrates that despite the allocations, the JMWP will experience a shortfall in overall provision from 2023.

⁹⁰ Replacement Minerals Local Plan for Berkshire. 2001: <https://www.bracknell-forest.gov.uk/sites/default/files/documents/replacement-minerals-local-plan-for-berkshire>

Therefore, the JMWP will need to enable additional development to address this shortfall.

Figure 10: Predicted depletion rate of sand and gravel in Central & Eastern Berkshire



5.127 The provision of mineral supply is set out in National Policy⁹¹. This is supported by Planning Practice Guidance (PPG)⁹² which states that:

'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):

1. *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;*
2. *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*
3. *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.'*

5.128 In preparing the JMWP, the intended approach has been to designate specific sites for minerals development. Where there was a recognised shortfall in

⁹¹ National Planning Policy Framework (Chapter 17): https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/779764/NPPF_Feb_2019_web.pdf

⁹² Paragraph: 008 Reference ID: 27-008-20140306: <https://www.gov.uk/guidance/minerals#planning-for-minerals-extraction>

provision of sites, a criteria-based approach is to be applied to provide a steer in decision-making on where sites were expected to come forward.

5.129 This approach is recognised as providing the most certainty to developers and local residents, as set out in the PPG⁹³:

‘Designating Specific Sites in minerals plans provides the necessary certainty on when and where development may take place. The better the quality of data available to mineral planning authorities, the better the prospect of a site being designated as a Specific Site.’

5.130 However, despite four ‘call for sites’, sufficient deliverable minerals sites to meet needs have not been identified. This suggests that it may not be possible for the Plan to demonstrate it can maintain a steady and adequate supply, as required by the National Planning Policy Framework⁹⁴.

5.131 A lack of provision in the Joint Plan may result in demand for sand and gravel being met from elsewhere, possibly from neighbouring mineral planning areas which have sand and gravel resources. In order to demonstrate security of supply, ‘Duty to Cooperate’ discussions will need to be held with neighbouring authorities.

5.132 As Central and Eastern Berkshire contains sharp sand and gravel resources, it is not unexpected that there is a reluctance by neighbouring authorities that the burden of supply will be placed on other mineral planning authorities rather than those within the Plan area.

5.133 Therefore, the Central & Eastern Berkshire Authorities are seeking to demonstrate the potential for provision within the Plan area by outlining a sand and gravel ‘Area of Search’.

5.134 The Area of Search will be supported by a sub-regional sharp sand and gravel Statement of Common Ground involving neighbouring authorities with suitable resources. This will demonstrate that a burden of supply is not being placed on any single neighbouring mineral planning area.

5.135 The 2014 Aggregate Monitoring survey suggests that Hampshire, Wiltshire and Oxfordshire were the main sources of sand and gravel used in Berkshire. The

⁹³ Paragraph: 009 Reference ID: 27-009-20140306

⁹⁴ National Planning Policy Framework (Para. 207):

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/810197/NPPF_Feb_2019_revised.pdf

Statement would be updated as and when the data from the proposed 2020 survey was made available to reflect the sources of supply to the Plan area.

Defining an Area of Search

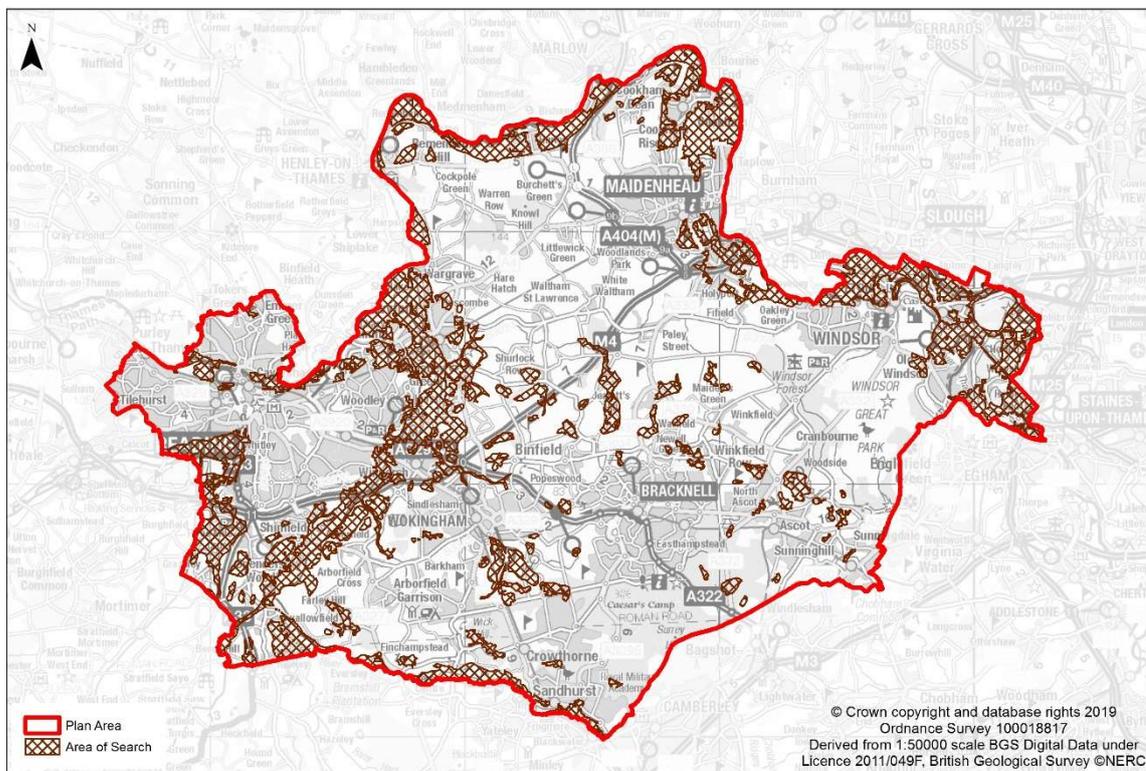
- 5.136 There is no formal guidance on defining areas of search and therefore, examples of current practice have been reviewed. Consideration has also been given to current adopted policy in the Minerals Local Plan⁹⁵ and national policy.
- 5.137 The presence of mineral is the basis for defining any area but the inclusion of other criteria to be applied can vary. The greater the number of criteria applied, the more precisely the area is defined as areas of land are excluded.
- 5.138 The National Planning Policy Framework (NPPF) sets out a clear policy approach on where development should be avoided in order for it to be sustainable. These criteria include the following designations:
- Special Protection Areas, Special Areas of Conservation and Ramsar sites;
 - Sites of Special Scientific Interest;
 - Ancient Woodland;
 - Listed Buildings and Conservation Areas;
 - Scheduled Monuments;
 - Historic Registered Parks and Gardens; and
 - Registered Battlefields.
- 5.139 Development should also avoid Areas of Outstanding Natural Beauty (AONB), National Parks and the Broads. Although these designations do not exist within the Plan area, the North Wessex Downs AONB and the Chilterns AONB border the western boundary of the Plan area.
- 5.140 In some cases, the setting of a designation, such as a Listed Building or AONB, should be avoided. However, as it is considered that as these are not clearly defined and are invariably subjective, it is not appropriate to include 'settings' within an Area of Search. This issue would be addressed through application of development management policies.
- 5.141 Consideration of cumulative impacts is also important, but this is difficult to determine within an Area of Search as there is no certainty on the location or timing of proposals. Therefore, cumulative impacts would need to be considered at the point an application was submitted.

⁹⁵ Berkshire Replacement Local Plan for Minerals (Joint Strategic Planning Unit) (2001): <https://www.bracknell-forest.gov.uk/sites/default/files/documents/replacement-minerals-local-plan-for-berkshire-2001.pdf>

5.142 In addition to designations, built up areas have been excluded from the Area of Search as the mineral resource has generally been sterilised, and a cross-check has been made against the Environment Agency’s historic landfill data. Proposed future development areas have not been excluded, as there may be opportunities for prior extraction of sand and gravel, in line with other policies in the plan.

5.143 Lastly, to encourage viable proposals, a threshold of 3ha has been included in the Area of Search. Land less than 3ha in size was considered unviable for extraction as a standalone site as explained the Safeguarding Study⁹⁶. The resulting ‘NPPF compliant’ Area of Search is outlined pictorially in Figure 11.

Figure 11: NPPF compliant Area of Search



Non-Aggregates

5.144 Although sand and gravel are the main mineral produced in Central and Eastern Berkshire, the demand for other minerals needs to be considered.

⁹⁶ Minerals and Waste Safeguarding Study (July 2020): www.hants.gov.uk/berksconsult

Clay

- 5.145 In the past, Berkshire had numerous small workings for clay for making bricks and tiles, but the mass production of bricks at much larger brickworks elsewhere in the region and the more general use of concrete tiles, has led to the closure of all the brick and tile works within the Berkshire area.
- 5.146 The last remaining brick and tile works was located at Star Works, Knowl Hill, between Reading and Maidenhead. Although the site contains extensive permitted reserves of clay, the manufacture of bricks and tiles ceased during the 1990s.

Clay extraction

- 5.147 Common clay was one of the main minerals produced in Berkshire up until the 20th century. The most important were the land clay pits of the Lambeth Group and some of these were worked for over 200 years.
- 5.148 Some clay is dug intermittently from deposits near Reading and elsewhere for use as bulk fill or for sealing sites which are to be filled with putrescible waste. These are generally 'one-off' operations, and there appears to be no demand for claypits to be established to serve these markets on a long-term basis.
- 5.149 There have not been any operational claypits permitted to support industrial processes for over 10 years.

Future Provision

- 5.150 Due to the lack of current brick and tileworks within Central and Eastern Berkshire, there is no requirement to make 25 years provision of brick-making clay as outlined in the NPPF⁹⁷.
- 5.151 As such, no allocations for clay extraction are required to support the JMWP and any future proposals can be determined using a general policy.

Chalk

- 5.152 In Berkshire, chalk was of some local importance and the use of chalk for agricultural purposes dates back to Roman times.

⁹⁷ National Planning Policy Framework (Para. 208 (c)):
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/779764/NPPF_Feb_2019_web.pdf

5.153 The geological outcrops of chalk in Berkshire are fairly extensive, but demand for new workings is very limited.

Chalk extraction

5.154 The continuing demand for chalk as agricultural lime is very low. The last active chalk pit in Berkshire, at Pinkneys Green (Hindhay Quarry) near Maidenhead is currently being restored. Some of the chalk from this pit was also used as bulk fill.

Future provision

5.155 In recent years, chalk extracted in Central and Eastern Berkshire has only been used in the production of agricultural lime rather than to supply a processing plant. As a result, there is no requirement to make 15 years provision of chalk (as cement primary) as outlined in the NPPF⁹⁸.

5.156 As such no allocations for chalk extraction are required to support the JMWP, and any future proposals can be determined using a general policy.

Oil and Gas

5.157 Oil and gas are nationally important mineral resources and it is government policy that exploration should be supported, and resources exploited subject to environmental considerations.

Resources

5.158 Oil and gas resources (known as ‘hydrocarbons’) are classed as either ‘conventional’ or ‘unconventional’. Conventional resources are situated in relatively porous sandstone or limestone rock formations. Unconventional sources are found where oil and gas has become trapped within a non-traditional reservoir such as shale rock and require non-traditional methods of extraction.

5.159 As shale is less permeable (or easily penetrated by liquids or gases), significantly more effort is required to extract the hydrocarbons from the rock. However, recent technological advancements have resulted in horizontal drilling which has made tapping into shale deposits more financially viable.

⁹⁸ National Planning Policy Framework (Para. 208 (c)):
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/810197/NPPF_Feb_2019_revised.pdf

- 5.160 Hydraulic fracturing (sometimes referred to as ‘fracking’) is a technique used in the extraction of oil or gas from shale rock formations by injecting water at high pressure. This process has caused some controversy. However, the Government’s position is that there is a pressing need to establish (through exploratory drilling) whether or not there are sufficient recoverable quantities of unconventional oil and gas present to facilitate economically viable full-scale production.
- 5.161 There are no known commercial resources of oil and gas in Central and Eastern Berkshire, although viable conventional resources of oil and gas have been identified and are being exploited in neighbouring counties, such as Hampshire.

Oil and Gas Exploitation

- 5.162 Oil and Gas licences are granted by the Oil and Gas Authority⁹⁹ and confer rights for persons to search for, bore and produce petroleum resources. Oil and gas activity comprise a number of different stages including the exploration of oil and gas prospects, appraisal of any oil and gas found, production and distribution. The production and distribution of oil and gas usually involves the location of gathering stations which are used to process the oil and gas extracted. All stages require planning permission from the relevant minerals planning authority. The development of gathering stations requires more rigorous examination of potential impacts than exploration or appraisal.
- 5.163 There are currently no licence areas within Central and Eastern Berkshire. A former licence area within Windsor (PEDL 236) was relinquished in 2014¹⁰⁰.
- 5.164 There have also been two exploratory wells within the Central and Eastern Berkshire area, but these were completed in 1966 and 1974 respectively¹⁰¹.

Future Provision

- 5.165 The lack of a current licence area and the fact that earlier exploratory wells did not lead to further appraisal or production suggests that there is limited opportunity presently for the provision of oil and gas. However, as technology advances and more information on the geological conditions are available, this situation may change.

⁹⁹ OGA: <https://www.gov.uk/government/organisations/oil-and-gas-authority>

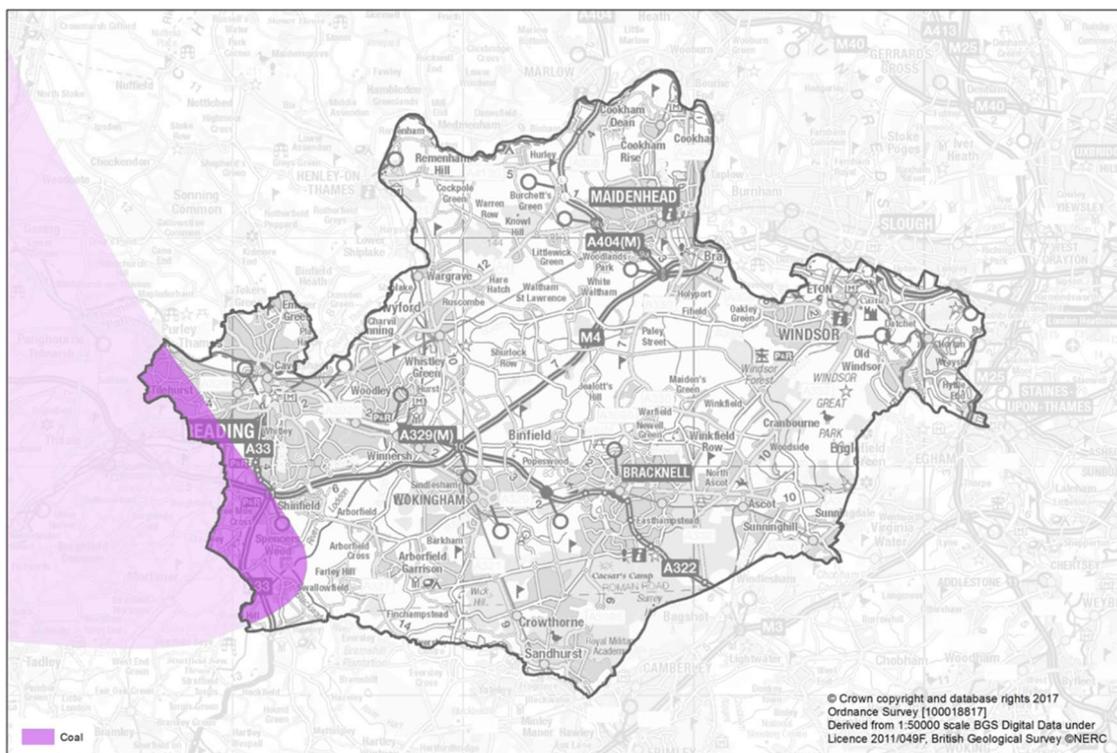
¹⁰⁰ Oil & Gas Authority – Licence data: www.ogauthority.co.uk/data-centre/data-downloads-and-publications/licence-data/

¹⁰¹ Oil & Gas Authority – Licence data: www.ogauthority.co.uk/data-centre/data-downloads-and-publications/licence-data/

Coal

- 5.166 There is a significant coal seam in West Berkshire which runs into the western edge of Central and Eastern Berkshire¹⁰² (see Figure 12). It is deep underground and not considered to be viable for extraction. Due to the depth of the deposits, open cast mining would be impractical, and any exploitation would need to be by underground mining. The coals are present in a thin gas seam and the coal measures are considered as unprospective for coalbed methane¹⁰³.
- 5.167 However, consideration should be given to the increasing price of energy which may make more inaccessible sources viable.

Figure 12: Coal resources in Central and Eastern Berkshire



¹⁰² British Geological Survey: www.bgs.ac.uk/downloads/start.cfm?id=2590

¹⁰³ British Geological Survey – Mineral Resource Information in Support of National, Regional and Local Planning: www.bgs.ac.uk/downloads/start.cfm?id=2589

Appendix 1 – Saved Policies

Regional Policy

Policy NRM6: Thames Basin Heaths Special Protection Area

New residential development which is likely to have a significant effect on the ecological integrity of Thames Basin Heaths Special Protection Area (SPA) will be required to demonstrate that adequate measures are put in place to avoid or mitigate any potential adverse effects. Such mitigation must be agreed with Natural England.

Priority should be given to directing development in those areas where potential adverse effects can be avoided, without the need for mitigation measures. Where mitigation is required, local planning authorities, as Competent Authorities, should work in partnership to set out clearly and deliver a consistent approach to mitigation, based on the following principles:

- i. A zone of influence set at 5km linear distance from the SPA boundary will be established where measures must be taken to ensure that the integrity of the SPA is protected.
- ii. Within this zone of influence, there will be a 400m “exclusion zone” where mitigation measures are unlikely to be capable of protecting the integrity of the SPA. In exceptional circumstances, this may vary with the provision of evidence that demonstrates the extent of the area within which it is considered that mitigation measures will be capable of protecting the integrity of the SPA. These small locally determined zones will be set out in local development frameworks (LDFs) and SPA avoidance strategic and agreed with Natural England.
- iii. Where development is proposed outside the exclusion zone but within the zone of influence, mitigation measures will be delivered prior to occupation and in perpetuity. Measures will be based on a combination of access management, and the provision of Suitable Accessible Natural Greenspace (SANG).

Where mitigation takes the form of provision of SANG the following standards and arrangements will apply:

- iv. A minimum of 8 hectares of SANG land (after discounting to account for current access and capacity) should be provided per 1,000 occupants.
- v. Developments of fewer than 10 dwellings should not be required to be within a specified distance of SANG land provided it is ensured that a sufficient quantity of SANG land is in place to cater for the consequent increase in residents prior to occupation of the dwellings.

- vi. Access management measures will be provided strategically to ensure that adverse impacts on the SPA are avoided and that SANG functions effectively.
- vii. Authorities should cooperate and work jointly to implement mitigation measures. These may include, inter alia, assistance to those authorities with insufficient SANG land within their own boundaries, cooperation on access management and joint development plan documents.
- viii. Relevant parties will cooperate with Natural England and landowners and stakeholders in monitoring visitor pressure on the SPA and review/amend the approach set out in this policy, as necessary.
- ix. Local authorities will collect developer contributions towards mitigation measures, including the provision of SANG land and joint contributions to the funding of access management and monitoring the effects of mitigation measures across the SPA.
- x. Large developments may be expected to provide bespoke mitigation that provides a combination of benefits including SANG, biodiversity enhancement, green infrastructure and, potentially, new recreational facilities.

Where further evidence demonstrates that the integrity of the SPA can be protected using different linear thresholds or with alternative mitigation measures (including standards of SANG provision different to those set out in this policy) these must be agreed with Natural England.

The mechanism for this policy is set out in the TBH Delivery Framework by the TBH Joint Strategic Partnership and partners and stakeholders, the principles of which should be incorporated in to local authorities' LDFs.

Local Policy

Replacement Minerals Local Plan for Berkshire¹⁰⁴

Policy 1

The local planning authorities will seek to husband the mineral resources of Berkshire, to prevent their wasteful use or sterilisation.

Policy 2

The local planning authorities will oppose development proposal which would cause the sterilisation of mineral deposits in the proposed development site, or which would prejudice the future working of minerals in adjacent sites, except where it is demonstrated that

¹⁰⁴ Replacement Minerals Local Plan for Berkshire (2001): <https://www.bracknell-forest.gov.uk/sites/default/files/documents/replacement-minerals-local-plan-for-berkshire-2001.pdf>

- (i) The mineral deposit is of no commercial interest, and is unlikely to be so in the future; or*
- (ii) Having regard to all relevant planning considerations, there is an overriding case in favour of allowing the proposed development to proceed without the prior extraction of mineral; or*
- (iii) Extraction of the mineral would be subject to such strong environmental or other objection that it would be highly unlikely that it would ever be permitted in any circumstances.*

Policy 2A

In appropriate cases, the local planning authorities will encourage the extraction of mineral prior to other more permanent forms of development taking place. Planning permission will be granted on applications for prior extraction of minerals, provided that

- (i) Mineral extraction and restoration to an appropriate standard can be completed within a timetable that would not reasonably prejudice the timetable for the subsequent development; and*
- (ii) Mineral extraction and restoration operations, or their associated traffic, would not cause unacceptable impacts on the environment or living conditions.*

Policy 6

Proposals for sand and gravel extraction will be judged in accordance with Policies 7 to 24 of this Plan. In all cases, planning permission will only be granted if the local planning authority is satisfied

- (i) That an acceptable balance has been struck between the need for the mineral and all relevant environmental, agricultural, amenity and other relevant planning considerations;*
- (ii) That the details of the proposal, including the proposals for the method of working, site restoration, after-care and after-use satisfy the detailed requirements set out in this Plan.*

Policy 7

Within the framework provided by Policy 6, the merits of all applications for the extraction of sand and gravel will be assessed having regard to all material considerations, including

- (i) The likely effects of the proposal on living conditions, and the likely effects of the traffic which it would generate;*
- (ii) The need to protect the character and amenities of individual settlements, and to protect important open gaps between settlements from development which would cause long-term harm to the land's function;*

- (iii) *The need to protect sites or areas of ecological, geological, archaeological, historic, or architectural importance;*
- (iv) *The desirability of protecting Grade 1, 2 and 3a farmland, and the likely effects of the proposal on farm structure'*
- (v) *The need to protect woodland, areas of attractive landscape, and individual landscape features;*
- (vi) *The need to protect existing recreation sites, and to protect and enhance the recreation value of the public rights of way network;*
- (vii) *The need to guard against environmental damage resulting from changes to the water table;*
- (viii) *The need to protect water bodies and other water features, and to protect the water environment generally including the protection of the flow, quantity and quality of water supplies, and protection against increased risks of flooding to property and people;*
- (ix) *The need to minimise disturbance by securing the phased release of extraction sites; by encouraging (subject to all other planning considerations) the orderly progression of working and restoration in areas where extraction is to take place or is already taking place; and by resisting the unnecessary spread of working to new areas.*

Policy 8

In the Preferred Areas indicated on the Proposals Map and shown in more detail in Appendix 3, there will be a presumption in favour of allowing applications for the extraction of sharp sand and gravel, so long as

- (i) *The requirements of Policy 6 are all satisfied; and*
- (ii) *The proposals have full regard to the statement of detailed requirements for each area as set out in Appendix 3m or such other amended requirements as may be agreed with the local planning authority so long as these address the issues and respect the principles contained in the Appendix, and do not diminish the standard of development as provided for in that Appendix.*

Policy 10

Outside of the Preferred Areas, applications for the extraction of sharp sand and gravel will normally be refused. In considering whether or not to make an exception to this general presumption, the local planning authorities will take account of

- (i) *Whether there is a need to disturb land outside the Preferred Areas in order to maintain provision for the levels of production set out in Policy 3, or the landbank figure indicated by Policy 4;*
- (ii) *Whether that need could be more acceptably met elsewhere than on the application site, having particular regard (among other things) to the*

presumptions against extraction in specific areas indicated in Policies 11 to 13;

- (iii) *Whether the proposals overcome or accommodate all constraints deriving from the considerations set out in Policy 7.*

Policy 11

There will be the strongest presumption against allowing the extraction of sharp sand gravel from

- (i) *The North Wessex Downs Area of Outstanding Natural Beauty;*
- (ii) *Designated Sites of Special Scientific Interest (including classified and proposed Special Protection Areas, designed and candidate Special Areas of Conservation, and Ramsar sites and Nature Conservation Review and Geological Conservation Review sites);*
- (iii) *Statutory nature reserves;*
- (iv) *Scheduled ancient monuments, and other monuments of national importance;*
- (v) *Land owned or covenanted to the National Trust;*
- (vi) *Common land, and town or village green;*
- (vii) *Registered parks and gardens of special historic interest, and registered battlefields;*
- (viii) *The sites and settings of Grade 1 and 2* listed buildings;*
- (ix) *Statutory Green Belt land¹;*
- (x) *Land within built-up areas.*

¹ This refers only to a very small area of land at Ankerwycke (near Wraysbury) which is protected under the special provisions of the Green Belt (London & Home Counties) Act 1938. The position in the remainder of Green Belt will be set out in paragraphs 5.7 to 5.8.

Policy 12

There will be strong presumption against allowing the extraction of sharp sand and gravel from

- (i) *Areas of Special Landscape Importance, Wildlife Heritage Sites (including Regionally Important Geological/Geomorphological Sites), Parks and gardens of county importance, non-scheduled archaeological sites meriting preservation in situ, Conservation Areas and the settings of Grade 2 listed buildings, and the immediate settings of rivers and canals; and*
- (ii) *Allotments and land in established recreational use.*

Policy 13

There will be a strong presumption against allowing the extraction of sharp sand and gravel

- (i) *From land outside any of the areas of land specified in Policies 11 and 12 but which would adversely affect those areas; or*

- (ii) *Which would adversely affect the function of land important to the character or amenities of individual settlements, including land important to the separation of settlements.*

Policy 14

Outside the Preferred Areas, proposals for borrow pits to serve major construction projects will be acceptable so long as

- (i) *Material from the pit is only used in connection with the specific project with which it is associated;*
- (ii) *Extraction from the site will cause less environmental disturbance than would result from using material won from established sources of supply, and as long as the local planning authority is satisfied that none of the Preferred Areas identified in this Plan is able to meet the particular needs of the project;*
- (iii) *The pit is sited and operated so as to minimise environmental disturbance;*
- (iv) *Provision is made for the rapid restoration of the pit following extraction, preferably using only materials from elsewhere on the construction site; and*
- (v) *The location and operation of the pit have full regard to the issues set out in Policy 7.*

Policy 15

Applications for the extraction of building sand will be judged on their merits having strict regard to the provisions of Policies 6 and 7, to the issues in Policy 10, and to the presumptions in Policies 11 to 13. Notwithstanding Policy 11(i), the local planning authorities will be prepared to grant permission for the extraction of up to 150,000 tonnes a year from sites within the North Wessex Downs AONB, so long as all other requirements of these policies are met and the authorities are satisfied that the AONB will not be adversely affected by the operations proposed.

Policy 16

Applications for the extraction of chalk or clay, or minerals not at present worked in the county (apart from oil and gas) will normally only be permitted if:

- (i) *the minerals are shown to be required to meet a specific local need which cannot be met from existing permitted sites or by secondary and recycled aggregates; and*
- (ii) *the need for the mineral outweighs all environmental, agricultural, amenity and other relevant planning considerations; and*
- (iii) *the proposal is acceptable in terms of national or county constraints, as set out in Policies 11 to 13; and*

- (iv) the details of the proposal, including the proposals for the method of working, site restoration, after-care and after-use, satisfy the detailed requirements set out in the Plan; and*
- (v) proposals for related plant and buildings are acceptable in terms of Policy 28.*

Policy 17

Proposals relating to oil and gas will be judged in accordance with the following principles:

- (i) Proposals to carry out exploratory drilling will normally be permitted unless they would cause harm to sites or areas which are particularly sensitive in environmental terms, and provided that they are accompanied by satisfactory schemes of working and restoration;*
- (ii) Proposals for further drilling at the appraisal stage will be considered on their merits in terms of the issues listed in Policy 7 of this Plan, having particular regard to the long-term suitability of the site for commercial production and distribution;*
- (iii) Proposals for the commercial production of these minerals, or for the establishment of related plant, will be judged strictly on their merits in terms of the key principles set out in Policy 6 and the issues listed in Policy 7. Applications will normally only be permitted if*
 - (a) the need for the development outweighs all environmental, agricultural, amenity and other relevant planning considerations; and*
 - (b) the proposal is acceptable in terms of national and county constraints, as set out in Policies 11 to 13; and*
 - (c) the details of the proposal, including the proposals for the method of working, site restoration, after-care and after-use, satisfy the detailed requirements set out in this Plan; and*
 - (d) proposals for plant and building are acceptable in terms of Policy 28.*

Policy 18

- (i) Before they will be prepared to grant planning permission for mineral extraction, the local planning authorities will require to be satisfied that the land will be progressively restored within a reasonable timescale to an appropriate standard and an acceptable landform, landscape character and ecological character which are appropriate to its location and its intended after-use.*
- (ii) When considering other applications relating to the restoration of present or former mineral workings, the local planning authorities will be guided by the aim of ensuring the completion without undue delay of site restoration to an appropriate standard and an acceptable landform, landscape character and ecological character which are appropriate to its location and its intended after-use.*

The local planning authorities will impose conditions to secure these ends on any planning permissions granted, and may request the completion of legal agreements to secure matters which cannot be secured by planning conditions.

Policy 19

When considering applications for mineral extraction, the local planning authorities will seek to secure environmental and other public benefits (including, where appropriate, recreational benefits) through

- (i) The restoration, after-care and after-use of extraction sites; and*
- (ii) The environmental conservation and enhancement of the wider surrounding area to which the proposed extraction relates, and the promotion of recreational opportunities within this area.*

Policy 20

Proposals for restoration, after-care and after-use of the Preferred Areas must conform to and not prejudice the broad aims and strategies indicated in Appendix 3.

Policy 21

Every application for mineral extraction must be accompanied by

- (i) A comprehensive description of existing site conditions; and*
- (ii) A working plan indicating all aspects of the extraction operation; and*
- (iii) A restoration plan showing how the site is to be restored and managed after extraction so as to facilitate the introduction and continuing implementation of suitable after-care measures and an acceptable after-use; and*
- (iv) A written statement providing comprehensive supporting details, including details of the relationship of the proposals to the wider surrounding area.*

Policy 26

The local planning authorities will seek to safeguard

- (i) Sites at Padworth, Pingewood, Slough, Poyle and Colnbrook as indicated on the Proposals Map and in Appendix 7, and*
- (ii) Any sites where planning permission is given for the establishment of new rail aggregates depots,*

From development which would prejudice their use as rail aggregate depots.

The safeguarding of the sites at Padworth, Pingewood, Slough and Poyle will not imply any presumption in favour of their use as rail depots. Any planning

applications for the establishment of depots at these sites will be judged strictly in terms of Policy 25.

Policy 28

The local planning authorities will normally permit the erection at mineral extraction sites or rail aggregate depots of mineral processing or manufacturing plant, or of structures ancillary to a minerals use, so long as:

- 1 in the case of processing plant, the plant is required to process material extracted from the pit at which it is located, or brought into the depot by rail; and*
- 2 in the case of manufacturing plant,*
 - (i) the substantially greater part of the minerals used in the manufacturing process are extracted from the pit concerned, or brought in the depot by rail, and*
 - (ii) the manufacturing activities at all times remain ancillary to the primary use of the site as a mineral extraction site or an aggregates importing depot, as the case may be; and*
- 3 in the case of ancillary development, the development is required and used solely in connection with the administration or servicing of the pit concerned; and*
- 4 in all cases, the processing, manufacturing or ancillary activities (as the case may be) could not be more satisfactorily carried out at an existing or permitted plant, or in an existing or permitted structure; and*
- 5 in all cases, the plant or other development is removed and the site satisfactorily restored as soon as continuous production of minerals from the site ceases, or when the use of the site as a depot for the import of aggregates by rail ceases; and*
- 6 in all cases, the plant and other development can be and is sited, designed, constructed and landscaped so as to minimise adverse impact on the amenities of the areas and to give rise to no overriding environmental objections;*
- 7 in all cases, the traffic generated by the plant or other development would not give rise to overriding environmental or other objections; and*
- 8 in all cases, the size, type, nature and construction of the plant or other development are appropriate to the nature and scale of the permitted mineral extraction or aggregate importing operation for which it is required or with which it is associated; and*
- 9 in the case of sites located in the Green Belt.*
 - (i) The development is genuinely required in association with a mineral extraction or importing activity which is itself acceptable in terms of Green Belt policy;*
 - (ii) There are no alternative locations for the proposed development on land nearby which is not located in the Green Belt;*

(iii) *All buildings and structures are located and designed to minimise their impact upon the openness of the Green Belt.*

Policy 29

The import to a processing or manufacturing plant of material won elsewhere, and used for the same purpose as the minerals extracted from the pit at which the plant is located, will normally be refused.

The following policies were not saved beyond 27 September 2007

MLP 3	Level of sand and gravel production
MLP 4	Landbanks
MLP 5	Meeting the balance of demand
MLP 9	Deleted under 2001 Alterations
MLP22	Environmental Impact Assessment
MLP23	Archaeological Evaluation
MLP24	Other site investigations
MLP25	Importing aggregates by rail
MLP27	EIA for rail aggregates depot

Appendix 2 - Future Aggregate demand

It is logical that future demand will at least in part be a function of one or more variables in overall construction or economic activity, and the following forecasts were considered as possible indicators which may be useful in determining aggregate demand:

- Construction Industry Forecasts;
- HM Treasury forecasts, as an indication of predicted general economic activity;
- Predicted housing completions and other developments planned in Berkshire and around Berkshire (including relevant projects in the National Infrastructure Plan).

National Demand Factors

The National Infrastructure Plan¹⁰⁵ sets out the government's plans for economic, housing and social infrastructure over the next five years. The government is committed to investing over £100 billion by 2020-2021 into infrastructure projects such as transport, energy, communications, flooding and coastal, erosion, science and research, water and waste, housing and regeneration and social infrastructure (e.g. school, prisons and hospitals).

Projects within 30-50 miles of Central & Eastern Berkshire include Cross Rail, the additional runway at Heathrow¹⁰⁶, improvements to the M25, M3 and M4, as well as the Datchet to Teddington flood defences. A distance of 30-50 miles is the estimated distance over which the majority of aggregate produced in the Berkshire area are transported.

Economic and construction aggregate forecasts are considered to be useful for providing an overall contextual picture and an indication of anticipated aggregate demand. In summary, the findings are as follows:

- The Mineral Products Association produces a regular medium-term (three-year) market forecast for construction materials. In 2016, the forecasts suggest that by 2019, aggregate sales are likely to increase by 16% from 2015¹⁰⁷. However, in 2018, the Mineral Products Association suggested only a 4% increase in

¹⁰⁵National Infrastructure Delivery Plan 2016 – 2021:

www.gov.uk/government/uploads/system/uploads/attachment_data/file/520086/2904569_nidp_delivery_plan.pdf

¹⁰⁶ On 27 February 2020, the Court of Appeal ruled the decision to allow the expansion was unlawful because it did not take climate commitments into account. The future of the proposal remains unclear.

¹⁰⁷ The Mineral Products Association - Industry at a Glance (2016):

www.mineralproducts.org/documents/Mineral_Products_Industry_At_A_Glance_2016.pdf

primary aggregates between 2018 and 2020 but an 8% increase from 2017 in building sand due to mortar sales¹⁰⁸.

- The Office for National Statistics Construction Output bulletin for February 2020¹⁰⁹ indicated that there had been a decline of 1.7% in construction output which could be partly attributed to adverse weather conditions (the wettest since records began).
- The Office for Budgetary Responsibility (OBR)¹¹⁰ forecasts for 2020 and 2021 are 1.1% and 1.8% respectively. These figures are below previous estimates due to the 'deterioration in the global outlook and the slowdown in UK growth at the end of 2019, which was likely partly due to ongoing Brexit-related uncertainty'.
- A review of GVA¹¹¹ as an economic indicator forecasts the South East to have the greatest growth between 2019 and 2029 outside of London at 1.6% (compared to London's 1.0%).
- The Berkshire Economic Strategy¹¹² predicts an increase in GVA in the Thames Valley Berkshire Local Enterprise Partnership (LEP) area of 2.6% between 2020-2025.

The forecasts indicate a variety of trends but on the whole one of slow growth. The forecasts have outlined that there is uncertainty over the impact of the United Kingdom leaving the European Union ('Brexit') on the economy and the effect on growth.

More recently, there has been concern over the impact of the national emergency to the Coronavirus (COVID-19) pandemic on the minerals industry. This is expressed clearly in the Minerals Products Association Press Release¹¹³:

'Sales volumes of ready-mixed concrete and aggregates (crushed rock and sand & gravel), two materials that are used across most types of construction work, declined by 5.7% and 4.0% respectively over the quarter. For ready-mixed concrete, this follows three consecutive years of market declines since 2017, as Brexit-related uncertainties put a brake on commercial construction work, notably for offices, whilst

¹⁰⁸ The Mineral Products Association – Facts at a Glance (2018):

<https://mineralproducts.org/documents/Facts-at-a-Glance-2018.pdf>

¹⁰⁹ Construction output in Great Britain: February 2020:

<https://www.ons.gov.uk/businessindustryandtrade/constructionindustry/bulletins/constructionoutputingreatbritain/february2020>

¹¹⁰ Office for Budget Responsibility – Economic and Fiscal Outlook (March 2020):

https://cdn.obr.uk/EFO_March-2020_Accessible.pdf

¹¹¹ Regional and County Indicators – UK Parliament (April 2020)

¹¹² Thames Valley Berkshire: Delivering national growth, locally – Strategic Economic Plan, 2015/16 – 2010/21 -

<http://www.thamesvalleyberkshire.co.uk/getfile/Public%20Documents/Strategic%20Economic%20Plan/TVB%20SEP%20-%20Strategy.pdf?inline-view=true>

¹¹³ Mineral Productions Association – Press Release (5 May 2020): <https://mineralproducts.org/20-release15.htm>

housebuilding slowed in the capital. Housing and the commercial sectors have also been significantly impacted by the COVID-19 lockdown, with most major housebuilders having closed sites throughout the last week of March and April, and office construction impacted by the collapse in business and consumer confidence.

Simultaneously, mortar sales, which are primarily used in housebuilding, fell by a further 1.6% in the first quarter of 2020, after a 7.9% fall at the end of last year. The trend in mortar sales volumes has been subdued over the past 18 months, a clear indication of the underlying weaknesses in housebuilding even before accounting for the impact of the COVID-19 lockdown.'

The press release suggests that the impact of Brexit was already starting to have an impact at the start of 2020 on the construction industry which supports the OBR forecasts.

In 2017, the Mineral Products Association produced Long-term aggregates demand & supply scenarios, 2016-30¹¹⁴. Whilst the scenarios are estimated national demands, it is considered that they most accurately reflect the situation in the south east.

The scenarios consider the baseline of demand using Construction Products Association, GDP and population forecasts as well as the potential for a drive for low material intensity (for example through the use of alternatives rather than primary materials). Supply issues such as resource availability, permitted reserves, the use of recycled and secondary aggregates, imports, transport and logistics and skills availability are also taken into consideration in the scenarios.

The four scenarios include:

- 1) 'No change in the current supply mix of aggregates, i.e. the split between primary aggregates reflect the 2014 shares for marine sand and gravel in total sand and gravel (20%) and for total sand and gravel in total primary aggregates (36%).
- 2) The availability of land-based sand and gravel becomes constrained over time, but there is sufficient marine sand and gravel to replace it.
- 3) Declining availability in land-won sand and gravel is fully made up by crushed rock substitution, as marine supplies are limited by wharf and dredger capacity.

¹¹⁴Long-term aggregates demand & supply scenarios, 2016-2030 (MPA, 2017):

http://www.mineralproducts.org/documents/MPA_Long_term_aggregates_demand_supply_scenarios_2016-30.pdf

- 4) Declining availability of land-won sand and gravel is made up by a combination of increases in both marine sand and gravel and substitution with crushed rock supplies’.

The Mineral Products Association raised a number of points in their conclusions that are relevant to future demand in Central and Eastern Berkshire. It is suggested that even after projecting a further decline in material intensity, primary aggregate is likely to account for 60% of the sources for meeting aggregate demand. There are also suggestions that the declining trend in the use of land-won sand and gravel will continue with substitution by marine sand and gravel and crushed rock. Secondary and recycled materials are considered to continue making a significant contribution to supply (30%) although this is not expected to grow significantly.

The key likely demand-related factors for the longer term are considered to be population and activity in the construction industry. Construction of new homes, offices, industrial and other buildings and associated roads and other infrastructure requires large quantities of aggregates. For example, the Minerals Products Association¹¹⁵ suggests that a house requires 200 tonnes of aggregate, a school may require 15,000 tonnes of concrete and a community hospital may require 53,000 tonnes of concrete. In addition, maintaining and improving the existing built fabric of the area can also requires large quantities of aggregate.

It should be noted that the scenarios were produced prior to the national emergency relating to COVID-19 which is likely to have a short-term impact on the scenarios.

Local Demand Factors

Table A shows past completions of each of the Central and Eastern Berkshire Authorities.

¹¹⁵ The Mineral Products Industry at a Glance - https://mineralproducts.org/documents/Mineral_Products_Industry_At_A_Glance_2016.pdf

Table A: Past housing completions in Central and Eastern Berkshire (number of dwellings)

	2005 -2006	2006 -2007	2007 -2008	2008 -2009	2009 -2010	2010 -2011	2011 -2012	2012 -2013	2013 -2014	2014 -2015	2015 -2016	2016- 2017	2017- 2018	2018- 2019
BFC	267	131	501	467	325	410	264	390	314	376	336	437	416	755
RBC	656	637	837	782	693	321	312	474	361	635	751	717	700	910
RBWM	401	359	448	474	351	230	189	243	452	528	602	584	515	705
WBC	655	1018	488	368	226	220	273	401	488	454	638	933	1509	1250
Total	1979	2145	2274	2091	1595	1181	1038	1508	1615	1993	2327	2671	3140	3620

Source: Central and Eastern Berkshire Monitoring Reports and Wokingham Borough Five Year Housing Land Supply Statement

The Strategic Housing Market Assessment¹¹⁶ concluded that Western Berkshire (which includes Bracknell Forest, Reading and Wokingham) and Eastern Berkshire (including Windsor & Maidenhead and Slough) have an overall objectively assessed need for the following housing levels from 2013-2036:

- Western Berkshire – 2,855 homes per annum.
- Eastern Berkshire – 2,015 per annum.

The figures take into account demographic projections, migration from London, local economic needs and further adjustments to improve affordability and future household formation rate reductions.

Following the publication of the Housing White Paper¹¹⁷, the Government consulted on a standardised local housing need calculation¹¹⁸. The government has therefore revised national policy to state that future housing need should be calculated by using a standardised methodology, which determines the Local Housing Need (LHN) for each authority. The LHN for each authority forms the starting point for strategic plan making. However, this will only ever be at a specific point in time as LHN will change regularly as new data is published and the government consider making further changes to the methodology.

Application of the standard method has to be applied to Local Plans subject to exclusions. As the Royal Borough of Windsor & Maidenhead submitted their Local Plan to government in February 2018, the new method does not apply.

A spatial planning framework for West of Berkshire has been developed and outlines the strategic opportunities for delivery future housing needs.

¹¹⁶ Strategic Housing Market Assessment Final Report (2016):

http://www.reading.gov.uk/media/2959/Housing-Market-Assessment/pdf/Berkshire_Strategic_Housing_Market_Assessment_Feb_2016.pdf

¹¹⁷ Housing White Paper: www.gov.uk/government/publications/fixing-our-broken-housing-market

¹¹⁸ Planning for the right homes in the right places: consultation proposals: www.gov.uk/government/uploads/system/uploads/attachment_data/file/652888/Planning_for_Homes_Consultation_Document.pdf

A number of housing led developments are due to take place. These include four Strategic Development Locations (SDL) in Wokingham Borough¹¹⁹.

Wokingham has also been awarded garden settlement status by government, which will help fund analysis of whether up to 15,000 new homes could be delivered at Grazeley, across Wokingham and West Berkshire.

A range of transport infrastructure and commercial development are planned to take place in the next few years which will require aggregates. Crossrail, one of the largest construction projects in recent years, extends well into Central and Eastern Berkshire, with the current terminus planned to be at Reading¹²⁰. A programme of improvements to the highway network is also planned, many in Wokingham Borough.

A number of town centre developments are due to take place. These include the following:

- Major redevelopment of Bracknell Town Centre: Phase 1 and 2 are complete. As part of Phase 3, the council is reviewing plans for the civic quarter, Market Square and southern gateway. Work is also continuing to develop Princess Square and the area around old Bentalls store, called The Deck.
- Various schemes in Reading Town Centre capable of delivering up to 200,000 sq. metres of retail, leisure, office space and new areas of public realm.
- Areas allocated in Maidenhead Town Centre Area Action Plan comprising residential, retail (25,000 sq. m), office (79,000 sq. m), other employment (4,000 sq. m), public transport interchange, other uses including leisure, culture etc.

Commercial and industrial developments are planned at Arborfield Garrison; Green Park, Reading; Kennet Island, Reading and at Reading Southside. Developments are also planned at Alma Road, Windsor; Shinfield Science Park; Toutley Depot and Worton Grange as well as Slough Trading Estate.

In addition, social infrastructure projects are being progressed:

- Broadmoor, Crowthorne – a replacement hospital (56,000 sqm) is under construction. 270 housing units, a research park, care home, and the re-use of listed buildings are also planned.
- Land at Transport Research Laboratory, Crowthorne – outline planning permission was granted in 2015 for 1,000 housing units, a primary school,

¹¹⁹ Wokingham Major developments: www.wokingham.gov.uk/major-developments/

¹²⁰ Crossrail route map: www.crossrail.co.uk/route/maps/route-map

neighbourhood centre, community centre, care home, and depot. The demolition of existing buildings is due to commence later in 2016.

- Land at Blue Mountain, Binfield - a Learning Village, community facility, sports provision and 400 dwellings. Resolution to approve (2016) subject to the completion of a local agreement.
- Land at Amen Corner South - a primary school, neighbourhood centre, employment uses, new spine road and 725 dwellings. Resolution to approve 550 of the dwellings and neighbourhood centre and primary school (2014) subject to the completion of a legal agreement.
- Land at Amen Corner North – outline permission granted (2015) for 380 dwellings and a primary school (the latter has reserved matters approval).
- Land at Warfield - 2 primary schools, community hub, neighbourhood centre, new north-south spine road and 2,200 dwellings in 4 Areas (Areas 1 and 3 are subject to discussions with developers, Area 2 is under construction and Area 4 has been completed).
- Wexham Park Hospital (Slough) - redevelopment of hospital for new hospital uses.

Together these construction projects will require a range of aggregates amounting to on-going and increasing demand that will need to be met through the supply of sand and gravel, crushed rock and recycled aggregates in the years ahead.

Appendix 3 – Soft sand demand Assessment (2020 Update)

The purpose of this assessment

- 6.1 Due to the limited data available, the challenge is to provide a series of scenarios to establish the potential future demand for soft sand within Central and Eastern Berkshire. These scenarios are led by variable factors such as housing growth, population growth, economic growth, and past mineral extraction trends.
- 6.2 As a result of the annual nature of some of the data used, such as mid-year population results from the ONS, it was deemed necessary to adjust the figures used. This has had a significant impact on the results in some cases and may have an effect on the predicted 2036 demand.

Scenarios

Trend-led

Overview

- 6.3 Past sales provide a useful indication of both current and likely future demand, although with an added degree of caution. In the case of the Central & Eastern Berkshire Authorities, although historically there has been soft sand working, this has largely been dormant for the last decade
- 6.4 Notwithstanding the absence of indigenous production, there is still an apparent level of past consumption due to infrastructure development, which requires the use of minerals. Therefore, the assumption is that soft sand has been imported from surrounding authorities which produce soft sand.
- 6.5 The BGS Mineral Yearbook¹²¹, provides useful statistics relating to aggregate production and consumption. The yearbook indicates annual levels of total land-won sand and gravel (which incorporates soft sand) and levels of soft sand consumption. There is an assumed level of synergy regarding the use of soft sand and other aggregates such as sharp sand and gravel, in particular for construction related activities.

Methodology

- 6.6 Past sales of sand and gravel have been acquired through historic sales figures

¹²¹ BGS Mineral Yearbook: <http://www.bgs.ac.uk/mineralsUK/statistics/ukStatistics.html>

included within the Berkshire LAA (2016)¹²². This includes the years 2003 to 2012. Sales figures had previously included West Berkshire. West Berkshire's sales were reported in a separate LAA and therefore, this amount has been deducted from the Berkshire total. This is summarised in Table B.

- 6.7 The published BGS Yearbooks between 2004 and 2014 show an average level of soft sand (building sand) consumed in the UK compared with the total amount of sand and gravel produced to be 14.4% with a narrow range. There are no past sales of soft sand although it is acknowledged that there is a level of past consumption. Therefore, a 'notional' level of soft sand demand is assumed based on the past sales of sharp sand and gravel. This is provided by applying the 14.4% national average of soft sand consumption against total land-won sand and gravel within the Authorities.

Table B: Total Sand and Gravel production in Berkshire (million tonnes)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Berkshire	1.0	0.99	1.05	0.65	0.62	0.76	0.84	0.89	1.13	0.87	-	-	-
West Berkshire	-	-	-	0.53	0.59	0.49	0.39	0.28	0.28	0.23	0.20	0.16	0.54
Central & Eastern Berkshire*	-	-	-	0.12	0.03	0.27	0.45	0.61	0.85	0.64	-	-	

* Berkshire minus West Berkshire

Source: Berkshire and West Berkshire LAAs

Outcome

- 6.8 This outcome reflects a past notional demand for Bracknell Forest, Reading, Windsor and Maidenhead and Wokingham combined. Based on an average over the period 2006-2012 a notional demand of 60,672 tonnes of soft sand is assumed and project per year until the end of the plan-period, this equates to a requirement of approximately 0.97 million tonnes over the Plan period.

Population-led

Overview

- 6.9 A growing population within Central and Eastern Berkshire is likely to generate the need for additional built infrastructure. The Proposed Toolkit for Developing Aggregate Apportionment Option (ASRP 2/8) (2011) states that aggregate demand is informed by two factors: the demand from the existing population, and demand from future populations.

¹²² Berkshire LAA (2016): <https://www.wokingham.gov.uk/planning-policy/planning-policy-information/minerals-and-waste/>

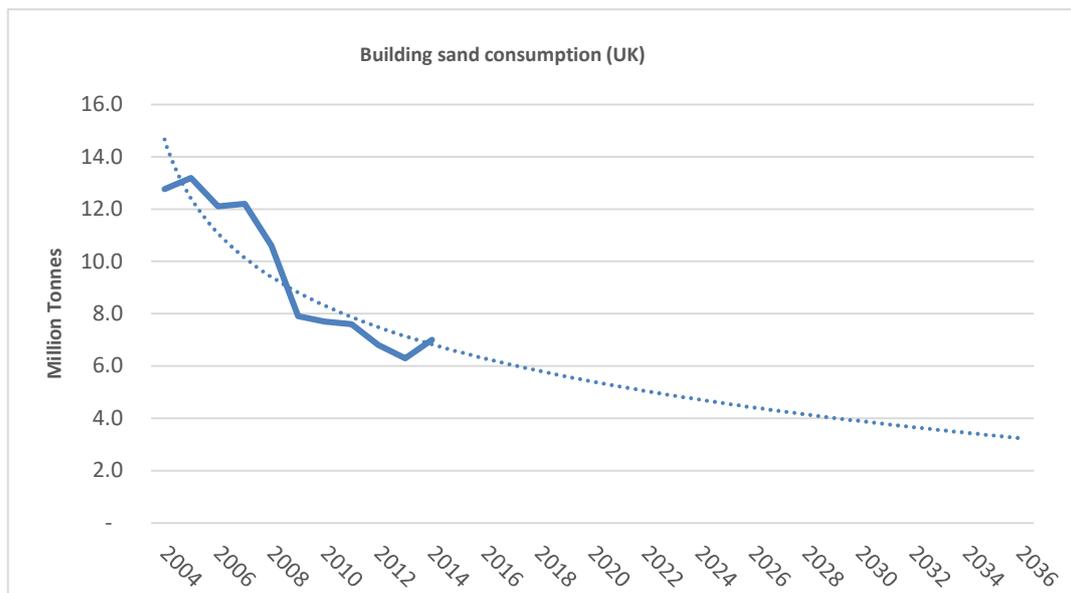
6.10 Mid-year population estimates provided by the ONS show the population across Central and Eastern Berkshire increase by 4%, with an increased population of around 25,000.

6.11 It therefore seems reasonable to suggest the increased level of demand for aggregates, in particular soft sand, can be based on population forecasts.

Methodology

6.12 The independent variables used within this scenario are the mid-year population estimates at 2036 (the end of the plan-period) both nationally and for Central and Eastern Berkshire, and the likely level of soft sand consumption in 2036 based on past trends. The latter derived from the UK Minerals Yearbook (2004 – 2014) prepared by the BGS. The potential level of soft sand consumption across the UK in 2036 was informed using a logarithmic trendline and demonstrated approximately 4,000,000 tonnes consumed nationwide in 2036 (shown in Figure A).

Figure A: Potential trajectory for soft sand consumption in the UK



Source: BGS Yearbooks (2004-2014)

6.13 Table C below shows the mid-year population estimates for both the UK and Central and Eastern Berkshire, and therefore a percentage of the UK population contributed by the Authorities.

Table C: 2036 mid-year population estimate (capita)

National	Central and Eastern Berkshire	Percentage share of national population
71,058,596	636,358	0.90%

Source: ONS (2020)

6.13 An assumption is made that the percentage share of national population by Central and Eastern Berkshire at 2036 is transposed into the percentage share of soft sand consumption likely to be demanded nationally in 2036.

Outcome

6.14 In summary, the level of demand would be approximately 573 thousand tonnes up until 2036, as of 2020 this equates to 35,822 tpa.

Housing-led

Overview

6.15 An important and widely accepted use for soft sand is as a constituent in mortar. Mortar is associated with the housebuilding industry and in particular for use in block and brick laying which contains a ratio of approximately 5 parts building sand to one-part mortar. An average 3-bedroom detached house requires approximately 18 tonnes of mortar, based on this ratio it is therefore it is assumed that for this sized dwelling, approximately 15 tonnes of soft sand would be required.

Methodology

6.16 The dwelling size (3-bedroom) is used due to the modal average of the dwelling size across Central and Eastern Berkshire. This is informed by the most recent SHMA (2016) for Berkshire which show 3-bedroom dwellings to account for approximately one-third of the housing stock required up until 2036.

6.17 Local Housing Need is determined through a standard methodology outlined in the Housing White Paper. An assessment of Local Housing Need has been undertaken by Wokingham, Bracknell Forest, and Royal Borough of Windsor and Maidenhead (RBWM). Reading and RBWM have used the figures provided within the Strategic Housing and Marketing Assessment due to the authority submitting their local plan before the changes to methodology came into force.

6.18 To establish the tonnes per annum required over the plan period the total number of dwellings of all authorities is summed together and multiplied by the approximate amount of soft sand required to deliver a single unit.

Outcome

6.19 In summary, there is likely to be a need of 0.68 million tonnes of soft sand in demand over the Plan period, this equates to 42,510 tpa.

Economic-led

Overview

6.20 Since soft sand is used within construction activities such as housebuilding and other infrastructure, this scenario assumes a relationship between the level of productivity in the construction industry and demand for aggregate. The theory being that an increase in the construction industry's productivity demands a greater level of aggregate production, in this case soft sand. Therefore, the two independent variables used in this scenario is the level of GVA (income approach) for the construction industry which effectively demonstrates the sectors contribution to the economy, and; the notional demand for soft sand within Central and Eastern Berkshire, which effectively track sand and gravel production, as mentioned in one of the previous scenarios.

Methodology

6.21 The level of GVA (Income approach) for the construction industry in Berkshire measured from 2009 to 2015 demonstrates a growth rate of 12.45% over these years. Across the same period, the notional level of soft sand demand within Central and Eastern Berkshire demonstrate a growth rate of 11.15% over the same period, therefore a relationship between the two variables is assumed.

6.22 A future estimation for soft sand demand in Central and Eastern Berkshire can therefore potentially be based on GVA growth. Soft sand demand would therefore track GVA growth at approximately 12.5% over a 5-year period.

Outcome

6.23 Due to the nature of GVA growth being calculated over a year period to compensate for fluctuations, outcome of this is a stepped trajectory in relation to soft sand demand. Therefore, based on the assumed notional level of soft sand demand between in 2012 (which closely replicates the average between 2009 and 2012) the following is assumed based on GVA growth in the construction sector in Berkshire:

- 102,273 tpa would be required between 2020 and 2021
- 115,057 tpa would be required between 2022 and 2026
- 129,440 tpa would be required between 2027 and 2031
- 145,619 tpa would be required between 2031 and 2056

6.24 Over the Plan period this equates to a total requirement of 2.15 million tonnes of soft sand.

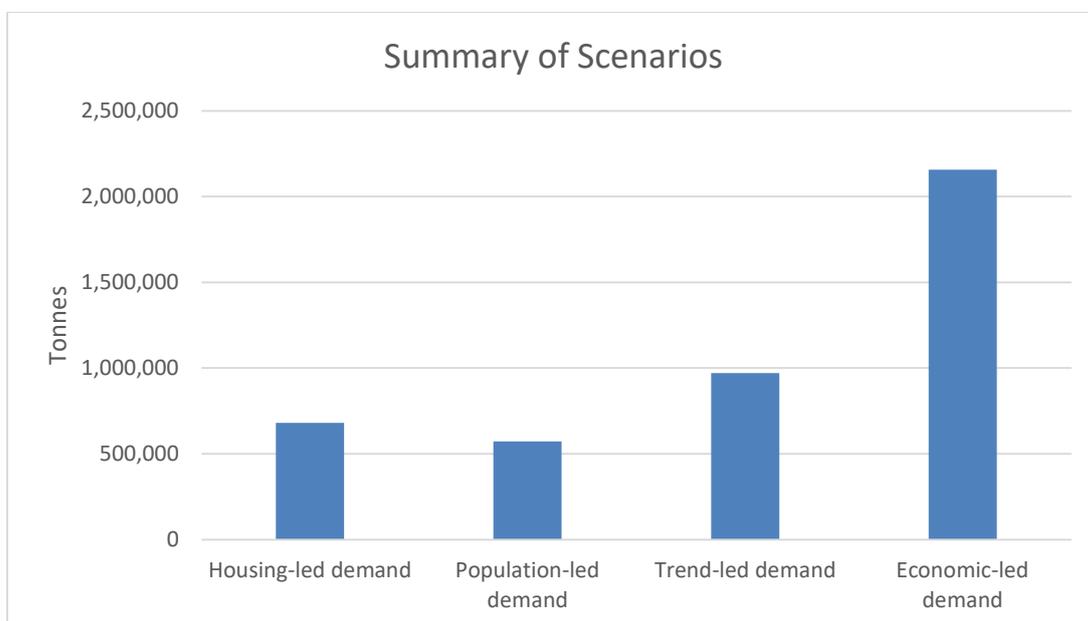
Summary of scenarios

6.25 Table D below provides a summary of the scenarios outlined above, providing both the potential level of soft sand demand over the plan period and the indicative annual demand. This is graphically represented further by Figure B.

Table D: Summary of scenarios

	Over plan period (2020-2036)	Per annum (2020 - 2036)
Housing-led demand	680,160	42,510
Population-led demand	573,145	35,822
Trend-led demand	970,752	60,672
Economic-led demand	2,155,126	102,273 - 145,619

Figure B: Summary of scenarios



Glossary and Abbreviations

Aftercare: Action necessary to bring restored land up to the required standard for an agreed after-use such as agriculture, forestry or amenity.

Aggregate Monitoring (AM) survey: The aggregate minerals survey provides information on the national and regional sales, inter-regional flows, transportation, consumption and permitted reserves of primary aggregates in England. The surveys cover both land-won and marine dredged aggregates.

Air Quality Management Area (AQMA): A designation made by a local authority where an assessment of air quality results in the need to devise an action plan to improve quality of air.

Alternative aggregates: A grouping of secondary and recycled aggregate

Amenity: Something considered necessary to live comfortably.

Apportionment: National government set a figure for the production of aggregates, usually expressed as an annual figure, which a mineral planning authority has to take account of and provide for in their minerals planning documents.

Area of Outstanding Natural Beauty (AONB): Areas of countryside considered to have significant landscape value and protected to preserve that value. Originally identified and designated by the Countryside Commission under Sections 87 and 88 of the National Parks and Access to the Countryside Act 1949. Natural England is now responsible for designating AONBs and advising Government and other organisations on their management and upkeep.

Armourstone: Stones of different sizes and irregular shape which are used in hydraulic protection and regulation structures.

Birdstrike: Risk of aircraft collision with birds.

Brickworks: A factory or plant where bricks are made.

British Geological Survey (BGS): The British Geological Survey focuses on public-good science for government, and research to understand earth and environmental processes. It provides objective and authoritative geoscientific data, information and knowledge.

Central and Eastern Berkshire: The administrative areas of Bracknell Forest Council, Reading Borough Council, the Royal Borough of Windsor & Maidenhead and Wokingham Borough Council.

Claypits: A pit or mine from which clay is extracted.

Construction & Demolition (C&D) waste: Waste generated by the construction, repair, maintenance and demolition of buildings and structures. It mostly comprises brick, concrete, hardcore, subsoil and topsoil but can also include timber, metals and plastics.

Energy security: An association between national security and the availability of natural resources for energy consumption.

Environment Agency: A public organisation with the responsibility for protecting and improving the environment in England and Wales. Its functions include the regulation of industrial processes, the maintenance of flood defences and water resources, water quality and the improvement of wildlife habitats.

Geology: The science that deals with the physical structure and substance of the earth, including the history and the processes that impact upon them.

Green Belt: An area designated in planning documents, providing an area of permanent separation between urban areas. The fundamental aim of Green Belt policy is to prevent urban sprawl by keeping land permanently open; the most important attribute of Green Belts is their openness.

Incinerator Bottom Ash (IBA): The coarse residue left on the grate of waste incinerators.

Joint Minerals & Waste Plan (JMWP): The JMWP will indicate what provision of minerals is required, where these may be located within Central & Eastern Berkshire; when they are to be provided and how they will be delivered during the Plan period to 2036.

Landbank: A measure of the stock of planning permissions in an area showing the amount of un-exploited mineral, with planning permissions, and how long those supplies will last at the locally apportioned rate of supply.

Land-won: Aggregate won from the land

Local Aggregate Assessment (LAA): The National Planning Policy Framework identifies that mineral planning authorities should produce Local Aggregate Assessments (LAAs) to support the preparation of Mineral Local Plans and act as a Monitoring Report. The LAA should include an estimate of what will constitute a

steady and adequate supply of aggregates and should be used as a basis for the provision for aggregate supply made in a Local Plan. The LAA also provides a basis for assessing the need for minerals supply infrastructure such as marine aggregate wharves, recycling facilities and rail depots.

Local Aggregate Assessment (LAA) Rate: The annual rate of provision expected in the LAA.

Managed Aggregate Supply System (MASS): A system of addressing the spatial imbalances in aggregate supply and demand. MASS is used by government to secure adequate and steady supplies of minerals needed by society and the economy without irreversible damage, within the limits set by the environment and assessed through sustainability appraisals.

Marine-won: Aggregate dredged from the sea, almost exclusively sand and gravel.

Mineral Products Association (MPA): The Mineral Products Association is the trade body for the UK's aggregates, cement and concrete industries

National Planning Policy Framework (NPPF): The NPPF was published on 27 March 2012 and subsequently revised in 2018 and 2019. It sets out the government's planning policies for England and how these are expected to be applied.

Permitted capacity: Mineral reserves with planning permission for future extraction.

Primary aggregate: These are aggregates produced from naturally occurring mineral deposits, extracted specifically for use as aggregate and used for the first time. They are produced either from rock formations that are crushed to produce 'crushed rock' aggregates, or from naturally occurring sand and gravel deposits.

Rail depot: A railway facility where trains regularly stop to load or unload freight (goods). It generally consists of a platform and building next to the tracks providing related services.

Ramsar sites (Wetlands of International Importance): Sites of international importance for waterfowl protected under the Ramsar Convention of the Conservation of Wetlands of International Importance, ratified by the UK Government in 1976

Recycled aggregate: Aggregate materials recovered from construction and demolition processes and from excavation waste on construction sites.

Restoration: Process of returning a site to its former use or restoring it to a condition that will support an agreed after-use such as agriculture or forestry.

Roadstone: A general term for any type of stone or stone product, such as shingle, flints, crushed stone, used as a construction material for building roads.

Safeguarding: The method of protecting needed facilities or mineral resources by preventing inappropriate development from affecting it. Usually, where sites are threatened, the course of action would be to object to the proposal or negotiate an acceptable resolution.

Secondary aggregate: Aggregates derived as a by-product of other quarrying and mining operations or industrial processes, including colliery spoil, china clay waste, slate waste, power station ashes, incinerator bottom ashes and similar products.

Sharp sand and gravel: Coarse sand and gravel suitable for use in making concrete.

Sites of Importance for Nature Conservation (SINC): A local designation conferred on an area of particular interest for its biodiversity interest designated according to criteria agreed with Natural England and the relevant Wildlife Trust. These sites may be designated for a range of ecological interest and may be of national importance.

Site of Special Scientific Interest (SSSI): A national designation for an area of special interest by reason of its flora, fauna, or geological or physiographical features, selected by Natural England and notified under Section 28 of the Wildlife and Countryside Act 1981.

Soft Sand: Fine sand suitable for use in such products as mortar, asphalt and plaster.

Special Area of Conservation (SAC): Areas which have been given special protection under the European Union's Habitats Directive. They provide increased protection to a variety of wild animals, plants and habitats and are a vital part of global efforts to conserve the world's biodiversity.

Special Protection Area (SPA): An area of importance for the habitats of certain rare or vulnerable categories of birds or for regularly occurring migratory bird species, required to be designated for protection by member states under the European Community Directive on the Conservation of Wild Birds (79/409/EC)

Sterilisation: When a change of use, or the development, of land prevents possible mineral exploitation in the foreseeable future.

Tileworks: A place where tiles are made.

A summary of this document can be made available in large print, in Braille or audio cassette. Copies in other languages may also be obtained. Please contact Hampshire Services by email berks.consult@hants.gov.uk or by calling 0370 779 5634