



# Somerset Local Aggregate Assessment

2013



Somerset County Council with Exmoor National Park Authority

Minerals and Waste Development Framework

2013



**EXMOOR**  
NATIONAL PARK

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For further details of the Exmoor National Park Local Plan, please visit  
<http://www.exmoor-nationalpark.gov.uk/planning/planning-policy>

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# **1 Introduction**

- 1.1 Aggregates (sand and gravel, and crushed rock) are the raw materials used to make construction products. They are an essential part of every day life and can be found in our roads, houses, schools and hospitals.
- 1.2 There are three main sources of aggregate in the UK: land-won; marine-dredged; and recycled and secondary. Land-won aggregates (often referred to as "natural" or "primary" aggregates) are materials extracted directly from the ground in quarries or pits. Marine-dredged aggregates comprise sand and gravel dredged from the sea floor in licensed areas of the UK continental shelf. Secondary aggregates are a by-product from mineral operations or industrial processes. Recycled aggregates are materials produced by treatment of construction and demolition waste.
- 1.3 Somerset is the largest producer of crushed rock in the south of England, the vast majority of which is extracted from the quarries in the east Mendip Hills. Mineral extraction is of considerable economic importance, providing direct and indirect employment and expenditure. Approximately 1,400 people were employed by quarrying in the Mendips in 2009 whilst approximately £160 million was spent in association with the winning, working and processing of crushed rock into aggregates and the production associated products in the Mendip Hills.<sup>1</sup>

## **A Local Aggregate Assessment for Somerset and Exmoor National Park**

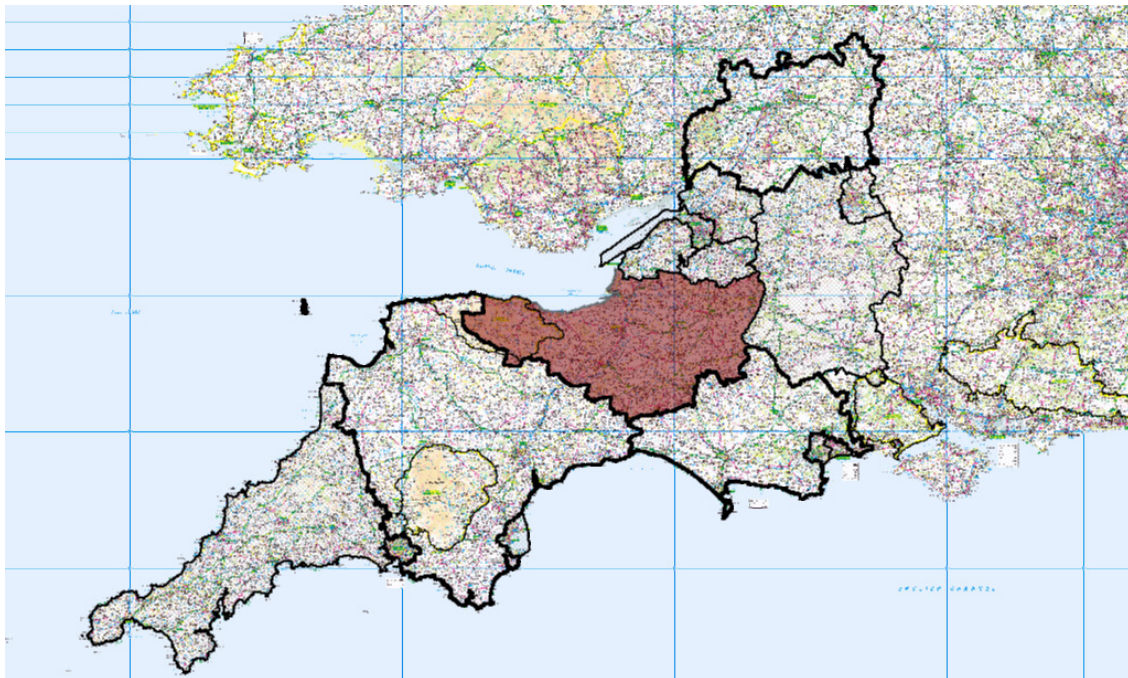
- 1.4 A large proportion of Exmoor National Park lies within the historic boundary of the county of Somerset. The purposes of National Parks are twofold: to conserve and enhance the natural beauty, wildlife and cultural heritage; and promote opportunities for the understanding and enjoyment of the special qualities of National Parks by the public.
- 1.5 Exmoor National Park Authority is the Mineral Planning Authority (MPA) for Exmoor National Park; however, the National Park produces no land-won aggregates. Despite a long history of mineral extraction on Exmoor, there are at present no operative mines or quarries in the National Park although stone is always in demand.
- 1.6 Due to the impacts of crushed rock extraction, large scale quarrying would be in conflict with the purposes of National Parks. As a result, Exmoor National Park Authority seeks to ensure sufficient levels of permitted reserves are available from outside National Parks.

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<sup>1</sup> Brian Perry, MQP, Employment and Financial Benefits of Quarrying on the Mendips  
25/01/2011

- 1.7 Traditionally the 'sub-regional' apportionment (the level of provision of aggregates in the sub-region for a given time period) has grouped Exmoor with Somerset.
- 1.8 National policy states Mineral Planning Authorities should produce a Local Aggregate Assessment (LAA) either individually or jointly by agreement with other Mineral Planning Authorities. Given the geographical location of the two authorities, National Park Purposes, and the limited scope for mineral working in Exmoor National Park, it is deemed appropriate by both authorities to produce a joint LAA, acknowledging also that a proportion of Exmoor lies in Devon and would be covered by Devon County Council's LAA.

**Figure 1: The Location of Somerset and Exmoor National Park within South West England (shaded area refers)**



- 1.9 Consequently, this LAA is prepared by Somerset County Council in partnership with Exmoor National Park Authority. For the purpose of this assessment 'Somerset' should be taken to include Somerset MPA area and a large proportion of Exmoor National Park as shown in Figure 1. This is the first LAA that has been produced for Somerset and Exmoor and details the current and future situation in terms of supply of and the demand for aggregates.
- 1.10 The LAA is also informed by a close working relationship with Devon County Council, in particular to ensure the approach to the sand and gravel provision is jointly agreed. The LAA has been informed by consultation with all the MPAs in the South West Aggregate Working Party (SW AWP) and other interested parties as appropriate.

## **The fundamentals of Local Aggregate Assessments**

- 1.11 There are significant geographical imbalances in the occurrence of suitable natural aggregate resources and the areas where they are most needed. Balancing these differences in supply and demand is the underpinning principle behind the Managed Aggregate Supply System (MASS).
- 1.12. Reforms to the planning system in England include reforms to MASS. The Government recognises the need to maintain the fundamental principles behind MASS, but it acknowledges the importance of local factors in determining appropriate levels of aggregate extraction.
- 1.13 As stated in the National Planning Policy Framework (NPPF),<sup>2</sup> each Mineral Planning Authority is required to prepare an assessment of the demand for and supply of aggregates in their plan area. This is known as the Local Aggregate Assessment (LAA). Somerset County Council is the Mineral Planning Authority for Somerset, excluding Exmoor National Park (see above for more information on Exmoor).
- 1.14 The LAA is structured around guidance from both the NPPF and Guidance on the Managed Aggregate Supply System.<sup>3</sup>
- 1.15 The LAA will:
- Forecast the demand for aggregates based on the average of 10 years sales data and other relevant local information.
  - Assess the balance between demand and supply, and economic and environmental opportunities and constraints that might influence the situation.
  - Analyse all aggregate supply options, as indicated by the landbank and capacity data.
- 1.16 The LAA will also seek to provide an assessment of the demand for and the supply of:
- Land-won resources.
  - Recycled aggregates, including from construction, demolition and extraction waste.
  - Secondary aggregates, whose sources come from industrial wastes and mineral by-products.
  - Marine sources, from areas licensed by the Marine Management Organisation for marine sand and gravel dredging.
  - Imports into and exports out of the Mineral Planning Authority Area.

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<sup>2</sup> DCLG. National Planning Policy Framework. March 2012. Paragraph 145.

<sup>3</sup> DCLG: Guidance on the Managed Aggregate Supply System, October 2012.

- 1.17 The Somerset LAA will form part of the evidence base to inform the Somerset Minerals Plan and the Exmoor National Park Local Plan.
- 1.18 The Somerset Minerals Plan: Preferred Options paper<sup>4</sup> states that the future provision for crushed rock in Somerset will be informed by the annual LAA and advice from the Aggregate Working Party (AWP).
- 1.19 The Aggregate Working Party is an advisory group comprising of Mineral Planning Authorities, central government and representatives from the aggregate industry. The AWP provides advice on the supply and demand for aggregates to central government and Mineral Planning Authorities. The AWP also undertakes annual monitoring of aggregates production, by type, use and the level of permitted reserves allowing for annual consumption to be calculated. Somerset County Council is part of the South West Aggregate Working Party (SW AWP).
- 1.20 The LAA for Somerset will be updated annually and used as a tool to inform the development and monitoring of the Somerset Minerals Plan and the Exmoor Local Plan. The LAA itself will not set policy or identify locations from which new supply should be achieved; that is done via the Minerals Plan.
- 1.21 The LAA will also provide an annual assessment of the level of provision required to support adequate and steady supply of aggregates, based on the results of a rolling average of 10 year sales and any relevant local information.

## **Geology of Somerset**

- 1.22 Somerset has a diverse geology<sup>5</sup>, resulting in a rich supply of mineral resources, ranging from Carboniferous limestone and igneous rock (Andesite/Tuff) in the north east (in particular in the Mendip Hills), to Devonian and Carboniferous sandstones in Exmoor National Park and West Somerset. Budleigh Salterton Pebble Beds and limited quantities of river terrace deposits form the main sand and gravel resources in the county.
- 1.23 Somerset is a nationally important source of crushed rock aggregates, predominantly from the Lower Carboniferous limestone of the Mendip Hills, as shown in Figure 2 (a) and (b). Large scale extraction is mainly limited to limestone of a Carboniferous age; however, Jurassic age limestones are still worked on a smaller scale for building stone.

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<sup>4</sup> Somerset County Council, Minerals Plan: Preferred Options, January 2013.

<sup>5</sup> All geological information presented here is referenced from: British Geological Survey, Mineral Resource Information in support of National, Regional and Local Planning: Somerset (2005).

Figure 2 (a): Crushed Rock Aggregate Workings in Sedgemoor

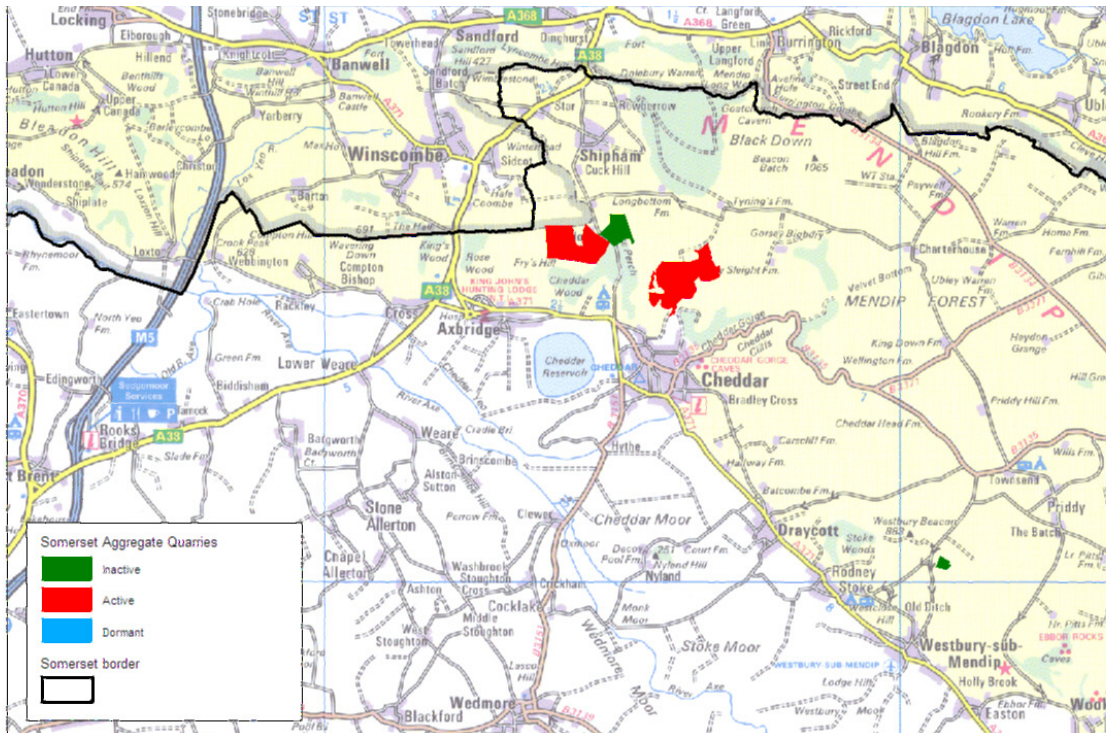
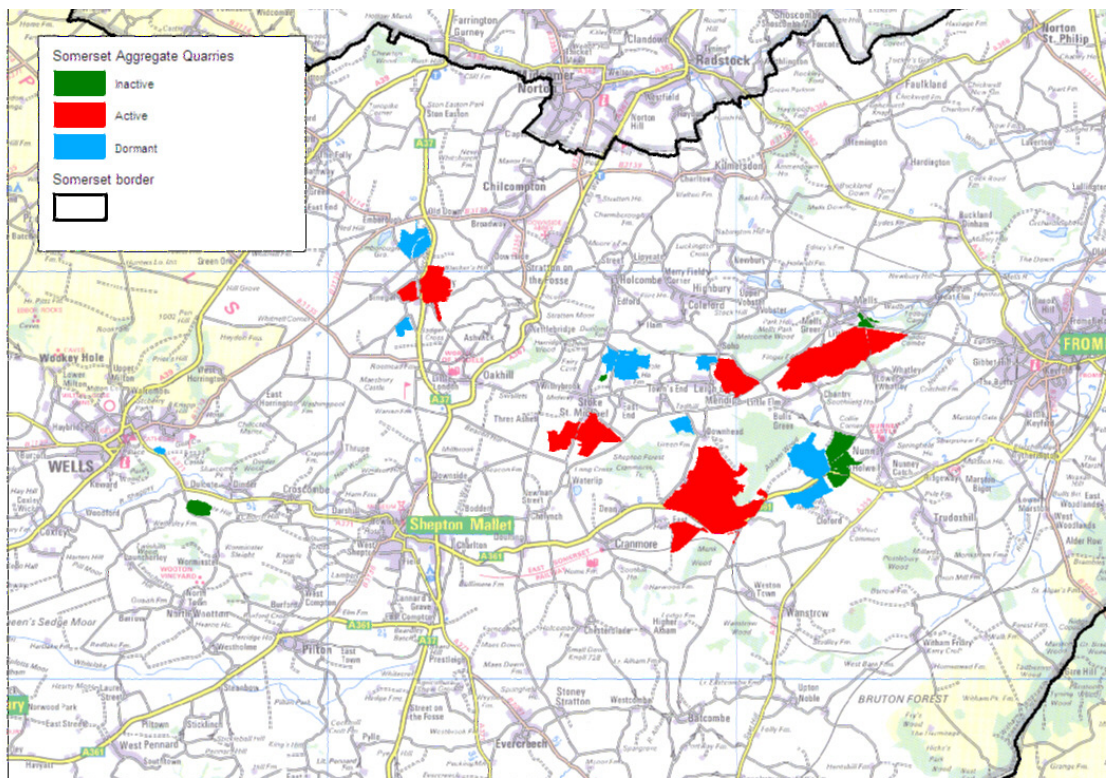


Figure 2 (b): Crushed Rock Aggregate Workings in East Mendip



- 1.24 Carboniferous limestone, such as Gully Oolite, Birnbeck Limestone, Vallis Limestone, Clifton Down Limestone and Hotwells Limestone form the broad ridge of the Mendip Hills which extends from Frome westwards to Weston-super-Mare. The Mendip sequence comprises a thick series of shelf type limestones that are divided into a number of formations, but there is little variation in the aggregate properties of limestone. All formations of limestone with the exception of Lower Limestone Shale form resources of road stone, railway ballast, construction fill and concreting aggregate.
- 1.25 Igneous Silurian rocks in the form of Andesite and Tuff can also be found centrally in the Mendip Hills. The Andesite is a good material for road surfacing since, below the zone of weathering, it is strong, durable and resistant to polishing with a high polished stone value (PSV).
- 1.26 The sand and gravel resources are limited and occur largely in river terrace deposits, sub-alluvial gravel deposits and bedrock deposits. However, the river terrace deposits and sub-alluvial gravel deposits are of limited thickness across the county and are not currently worked.
- 1.27 In Somerset the Budleigh Salterton Pebble Beds form the sand and gravel bedrock. Currently these are worked at Whiteball on the Devon / Somerset border; material is extracted on the Devon side for processing across the border in Somerset.
- 1.28 There are several crushed rock aggregate workings across the county, varying in size and resource. Table 1 shows the active permitted aggregate quarries and the mineral extracted across Somerset and Exmoor (excluding inactive and dormant sites). The table also includes building stone quarries that have previously sold stone as aggregate.
- 1.29 It is noted that there are several quarries in Somerset with a large permitted output in excess of 1 million tonnes per year. The Somerset Minerals Plan will need to ensure that large landbanks bound up in a few sites do not stifle competition. The production of the LAA each year will help to provide a mechanism for monitoring any potential issues in minerals supply.

**Table 1: Active Permitted Aggregate Quarries in Somerset and Exmoor**

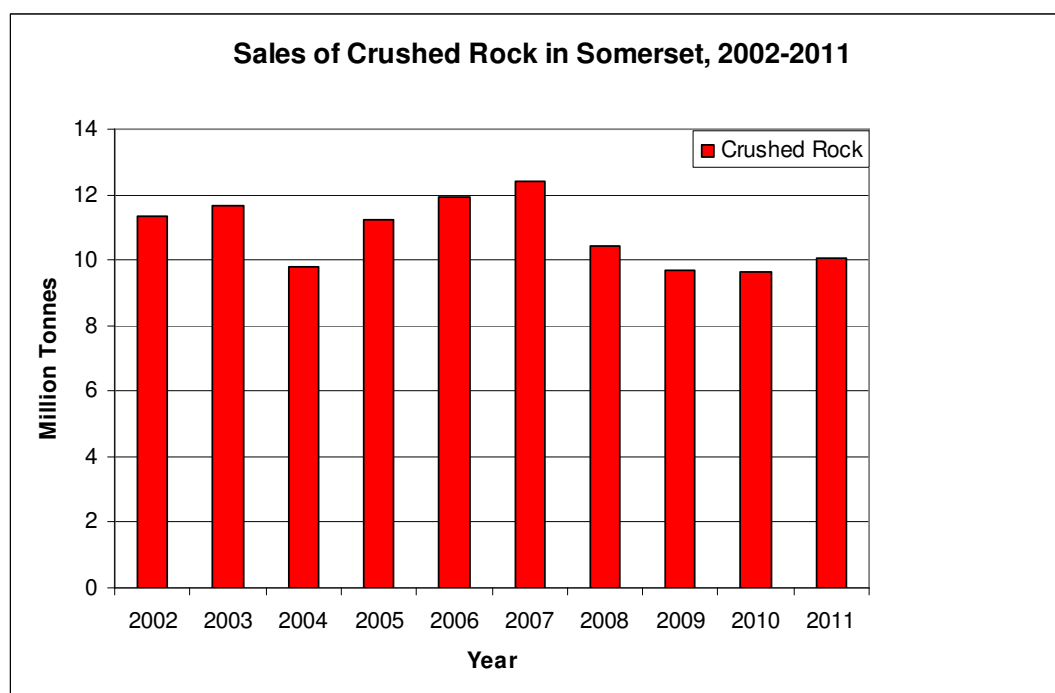
<b>Quarry</b>	<b>Operator</b>	<b>Mineral</b>	<b>Permitted Annual Output (tonnes)</b>	<b>Grid Reference</b>
Battscombe	Hanson Quarry Products Europe Ltd.	Carboniferous Limestone	1.3 million	ST 459 544
Callow Rock	Aggregate Industries UK Ltd.	Carboniferous Limestone	1.3 million	ST 447 560
Cannington Park	Castle Hill Quarry company Ltd.	Carboniferous Limestone	190,000 combined output	ST 251 403
Castle Hill				
Gurney Slade	Morris and Perry Ltd.	Carboniferous Limestone	2.0 million	ST 625 493
Halecombe	Lafarge Tarmac Ltd.	Carboniferous Limestone	1.0 million	ST 701 474
Moons Hill	John Wainwright and Company Ltd.	Igneous Silurian andesite	Unlimited	ST 662 460
Torr Works	Aggregate Industries UK Ltd.	Carboniferous Limestone	8.0 million	ST 693 463
Whatley	Hanson Quarry Products Europe Ltd.	Carboniferous Limestone	8.0 million	ST 732 480
<b>Building Stone</b>				
Castle Cary	R Comer	Oolitic Limestone	2,500	ST 654 314
Doulting	C Keevil	Jurassic Limestone	2,500	ST 648 435
Tout	R England	Jurassic Limestone	2,400	ST 536 281
West Cranmore	S Wolff	Jurassic Limestone	6,000 (combined with processing / dressing facility)	ST 659 431

## 2. Land-Won Aggregates

### Crushed Rock

- 2.1 Aggregate data are collected on an annual basis by the Mineral Planning Authorities and Aggregate Working Parties. The data collected by each MPA in the South West have historically been presented in the South West Aggregate Working Party (SW AWP - formerly South West Regional Aggregate Working Party) annual report. The report provides an annual update of the area's output and reserves and reflects the regional position of the aggregate supply system.
- 2.2 A four-yearly aggregate mineral survey<sup>6</sup> is conducted nationally, which in addition to sales and reserves information collects data on imports and exports between mineral planning authorities, and which sites work aggregate within or adjacent to environmental and/or landscape designations. The last survey was undertaken in 2009.
- 2.3 Sales of crushed rock in Somerset for a ten year period between 2002 and 2011 are shown in Figure 3 below and Table 2 overleaf.

**Figure 3: Sales of Crushed Rock in Somerset 2002-2011**



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<sup>6</sup> DCLG : Aggregate Mineral Survey 2009 available at:  
<https://www.gov.uk/government/publications/aggregate-minerals-survey-for-england-and-wales-2009-results>

- 2.4 From 2002-2011 crushed rock sales in Somerset have not fallen below 9.5 million tonnes despite the recent economic recession. Although Somerset's sales figures remain significantly higher than the national average the recent figures are considerably lower than the sales of the early 1990s and 2000s.
- 2.5 The sales pattern represents two parts of the economic cycle, a period with prosperity with high economic growth and development between 2004 and 2007 and a period of austerity with economic decline and minimal development between 2008 and 2011. The sales figure for 2011 shows signs of promise with a 0.4% increase on the prior year.
- 2.6 The sales pattern for Somerset is largely in line with the national and regional average with a peak in sales during 2007 when development was at a high demand, with a decline over the past 4 years whilst development has slowed.
- 2.7 Somerset supplied some of the crushed rock needed for the infrastructure behind the London 2012 Olympic Games. The increased sales production occurred over a period of national economic austerity. If Somerset had not contributed crushed rock to the Olympic infrastructure the economic effects could have had more of a significant impact on sales.
- 2.8 The precise figures for crushed rock sales for the 10 year period between 2002 and 2011 are shown in Table 2 below.

**Table 2: Crushed Rock sales in Somerset 2002-2011**

<b>Year</b>	<b>Sales (million tonnes)</b>
2002	11.34
2003	11.67
2004	9.81
2005	11.22
2006	11.9
2007	12.38
2008	10.46
2009	9.71
2010	9.62
2011	10.05
<b>Average</b>	10.81

## Comparison of Past Sales with the Sub-Regional Apportionments

- 2.9 Prior to publication of the NPPF and new guidance on the Managed Aggregate Supply System, government-led apportionments have been used to set the quantity (tonnes) of land-won aggregate that a Mineral Planning Authority should commit to provide. The most recent guideline apportionment figures were published in 2009<sup>7</sup> setting the expected annual level of aggregate production for each region until 2020. The regional apportionment is then divided into an apportionment for each Mineral Planning Authority, known as the sub-regional apportionment.
- 2.10 In the past it was the role of the South West Councils (as regional planning body) to apportion the Regional Guidelines for the south west to the sub-regional level in collaboration with the MPAs and advice from the RAWP. However, since the Localism Act 2011 regional planning has ceased to exist (including the dissolution of South West Councils) and the RAWPs have evolved into AWP.
- 2.11 Table 3 shows the sub-regional apportionment for Somerset's crushed rock between 2002-2011 (million tonnes).

**Table 3: Somerset Sub-regional apportionment 2002-2011**

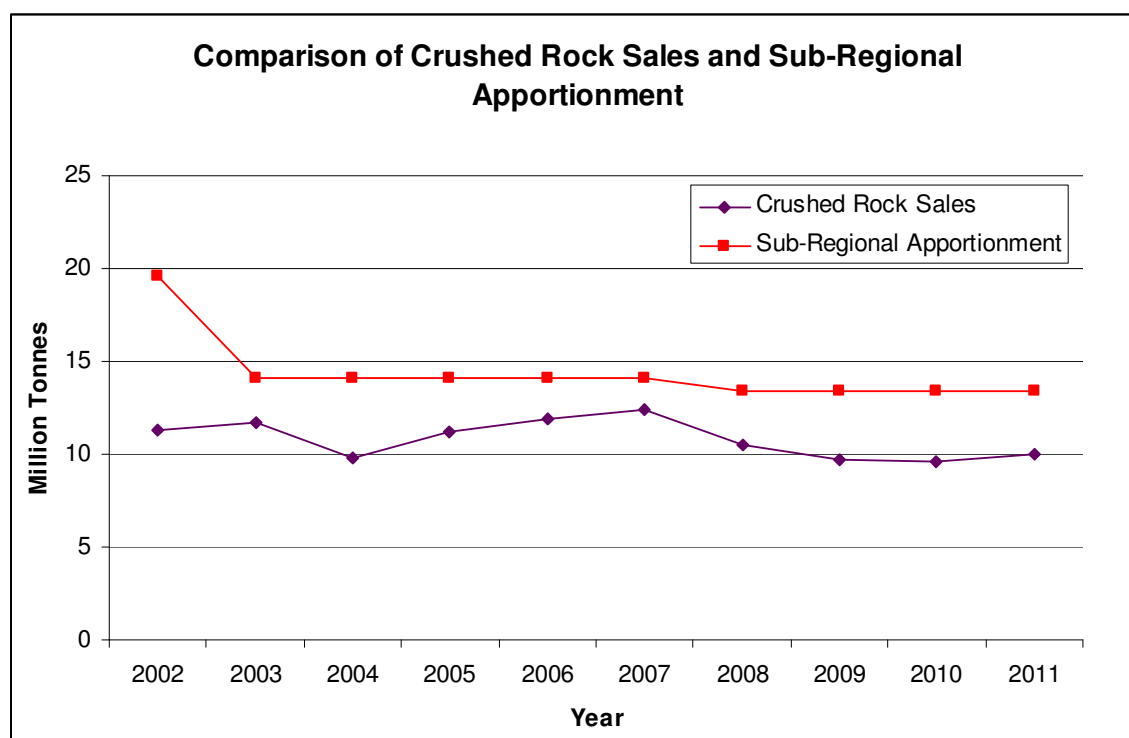
Year	Apportionment (million tonnes)
2002	19.6
2003	14.1
2004	14.1
2005	14.1
2006	14.1
2007	14.1
2008	13.4
2009	13.4
2010	13.4
2011	13.4

- 2.12 Figure 4 provides a comparison of Somerset's crushed rock sales as shown in Table 2 against the sub-regional apportionments as shown in Table 3 over a ten year period between 2002 and 2011. It shows that throughout the 10 year period, total crushed rock sales do not meet the level of apportionment afforded to the county. The data suggest that national and regional guidelines over-estimate the demand for crushed rock and a more flexible localised approach may be more appropriate.

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<sup>7</sup> DCLG: National and Regional Guidelines for Aggregates Provision in England 2005- 2020 available at:  
[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/7763/aggregate\\_provision2020.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/7763/aggregate_provision2020.pdf)

**Figure 4: Comparison of Crushed Rock Sales and Sub-Regional Apportionment**



## Landbank

- 2.13 The crushed rock landbank is the total amount of permitted reserves of crushed rock for which valid permissions are extant, excluding dormant sites, that ensures the continuity of mineral production. Historically calculations have been made to estimate the number of years production can continue based upon the permitted reserve being worked at the rate of the annual sub-regional apportionment.
- 2.14 Aggregate landbanks are principally a monitoring tool to indicate to MPAs early warnings of possible disruption to the provision of an adequate and steady supply of land-won aggregates in their particular area. MPAs should seek to maintain a landbank of at least 7 years for land-won sand and gravel and 10 years of crushed rock.<sup>8</sup>
- 2.15 The estimate for permitted crushed rock reserves in Somerset at the end of December 2011 was 336 million tonnes. This takes into account active quarries and the reserves for Shipham Hill, Colemans (Holwell), Lime Kiln Hill (East) and Barlynch quarries (listed as inactive). It did not include the planning application approved in January 2012 for the deepening of Torr Works Quarry which granted the release of a further 115 million tonnes of crushed rock aggregate.

<sup>8</sup> National Planning Policy Framework (NPPF) paragraph 145

- 2.16 Adding the recent permission at Torr Works to the former total yields a crushed rock landbank at the end of January 2012 of approximately 451 million tonnes.
- 2.17 Table 4 shows how long Somerset's landbank would last (calculated at the end of January 2012) when using the sub-regional apportionment figures. The 33.7 year period is significantly greater than the minimum 10 year requirement stated in national policy to ensure a steady and adequate future supply.
- 2.18 Section 6 of this LAA provides information on a locally-derived figure for future aggregate provision.

**Table 4: Somerset existing landbank (sub-regional apportionment)**

<b>Existing Landbank</b>	
Permitted Reserve	451 Mt
Sub-regional Apportionment	13.4 Mt
Estimated time remaining	33.7 years

## **Sand and Gravel**

- 2.19 Sand and gravel resources available in Somerset are limited. The sand and gravel apportionment for the county has always been shared with that of Devon and Cornwall.
- 2.20 The sand and gravel resource at 'Whiteball', extracting from the Budleigh Salterton Pebble Beds formation, straddles the Somerset-Devon border. The Whiteball operations supply aggregates into both counties and have always contributed towards Somerset's shared apportionment with Devon and Cornwall.
- 2.21 As previously mentioned one of the requirements of the LAA is to forecast a new figure for provision based on an average 10 years sales and other relevant location information. Somerset has not extracted sand and gravel during the past 10 years, as the production at Whiteball has been supplied by extraction on Devon's side of the border. Therefore Somerset does not have a 10 year average that can inform any potential future supply from Somerset. Bearing this in mind it is important for Somerset County Council to continue co-operating with Devon County Council in a joint approach to maintain adequate and steady provision of sand and gravel.
- 2.22 National policy<sup>9</sup> requires mineral planning authorities to make provision for the maintenance of landbanks for a minimum of 7 years worth of supply for sand and gravel. Given the circumstances surrounding Somerset's sand and gravel reserve, Somerset is not in a position to provide a separate sand and gravel landbank but through its Minerals Plan will need to contribute to a joint approach with Devon County Council and work with Devon County Council to maintain sub-regional supply.
- 2.23 The Preferred Options of the Somerset Mineral Plan has indicated Somerset County Council's intention to maintain the Preferred Area/Area of Search at Whiteball,<sup>10</sup> thereby contributing to a sub-regional supply, and use a criteria-based policy considering proposals elsewhere in Somerset.
- 2.24 Somerset's crushed rock sites also generate sand and gravel products which can be marketed alongside the main crushed rock output.

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<sup>9</sup> National Planning Policy Framework (paragraph 145)

<sup>10</sup> Somerset Mineral Plan Preferred Options Paper, policy SMP3

### 3 Imports and Exports

- 3.1 Information on the aggregates imports and exports for Somerset is available within the 2009 Aggregate Mineral Survey (AMS)<sup>11</sup>. The AMS identifies Somerset is a net exporter of crushed rock providing markets in the south west and south east. Somerset is, however, a net importer of sand and gravel and is largely reliant on imports from other Mineral Planning Authorities in South West England.
- 3.2 Table 5 provides details of the crushed rock exports from Somerset.

**Table 5: Crushed Rock Exports from Somerset (2009)**

Region	Destination	Export amount (tonnes)
South West	Gloucestershire	15,773
	Dorset	394,679
	Devon	46,893
	Cornwall	1915
	Avon	108,623
	Wiltshire	687,872
South East	Hampshire	652,836
	West Sussex	299,475
	Surrey	207,890
	Oxfordshire	24,976
	Kent	217,679
	East Sussex	125,554
	Berkshire	726,259
East	Hertfordshire	35,926
	Essex	338,770
	Other	498
London		1,870,517
Wales		382
<b>Total</b>		<b>5,756,517</b>

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<sup>11</sup> DCLG, Aggregate Mineral Survey 2009, available at:  
<https://www.gov.uk/government/publications/aggregate-minerals-survey-for-england-and-wales-2009-results>

- 3.3 The table shows Somerset is a nationally significant provider of crushed rock, exporting to markets across the south of England. Approximately 40% of Somerset's crushed rock export is exported to South East England, whilst 32% is exported to London and 22% stays within the south west.
- 3.4 London is the single biggest importer of Somerset crushed rock, due mainly to the significant imbalance between aggregate sources and major development schemes, and noting the rail links between Whatley and Torr Works Quarries and the South East. Outside of London, Berkshire, Wiltshire and Hampshire are the largest importing counties of Somerset crushed rock, mainly because of their limited supply and high development demand, and because the counties are also rail-linked with the Whatley and Torr Works quarries.
- 3.5 Imports of crushed rock are limited. Devon and North Somerset provide the largest proportion of imports serving local markets. Small amounts of imports also come from other areas in the south west and South Wales.
- 3.6 In contrast to crushed rock, Somerset currently has no land-won sand and gravel workings and is heavily dependant on imports. Table 6 shows the imports of land-won sand and gravel into Somerset.

**Table 6: Sand and Gravel Imports into Somerset**

Region	Origin	Import amount (tonnes)
South West	Gloucestershire	<10% (<40,000)
	Dorset	65% (290,000)
	Devon	<10% (<40,000)
	Cornwall	0
	Avon	0
	Wiltshire	<5% (<20,000)
South East	Hampshire	<1%
	West Sussex	<5% (<20,000)
	Surrey	<1%
	Oxfordshire	<5% (<20,000)
Other		<1%
<b>Total</b>		<b>378,000</b>

- 3.7 Table 6 shows the majority of Somerset's sand and gravel imports come from other authorities in the south west supplemented by smaller supplies from the south east. Dorset is the single largest provider of sand and gravel, whilst Devon and Gloucestershire also make a significant contribution.
- 3.8 The Chard Junction Quarry on the Somerset - Dorset border is a large contributor to Dorset's sand and gravel export into Somerset. The site predominantly serves local markets around the Yeovil, Taunton and Tiverton areas and is an important contributor to the local markets. The Quarry has an active permission running until March 2023, by which time it is estimated that reserves would have been worked. Whilst the Chard Junction Quarry is a significant source of sand and gravel import into Somerset, Dorset County Council is working to identify other sites that would ensure a sufficient landbank is maintained to maintain Dorset's supply into the sub-region.
- 3.9 Devon currently has a 15 year sand and gravel landbank based on the 10 years sales data<sup>12</sup>. Acknowledging the potential need for other sites during the latter stages of its plan period (to 2031) Devon County Council has identified a number of potential sites to come forward to ensure for a steady and adequate supply. As previously mentioned Somerset sand and gravel apportionment is shared with that of Devon and Cornwall. Going forward, through its mineral planning policy, Somerset County Council will continue to maintain its approach towards the Whiteball operations and the local supply it contributes to, working closely with Devon County Council to ensure adequate supply of sand and gravel is maintained.
- 3.10 Potentially extraction at Whiteball may be proposed on the Somerset side of the border during the next 10 years, moving from extraction on the Devon side of the border. Whilst this is unlikely to change Somerset's approach towards sand and gravel policy, it will alter the import / export figures, leading to Somerset exporting to local markets in Devon.
- 3.10 Gloucestershire, Wiltshire, Oxfordshire and West Sussex also supply smaller amounts of sand and gravel to Somerset markets. However, arguably these sources are less significant to Somerset's annual usage and the possibility to increase or rely on these sales is constrained by the high transportation costs.

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<sup>12</sup> Devon Local Aggregate Assessment, February 2013

## **4. Capacity of Aggregate Transportation Infrastructure**

### **Rail Infrastructure**

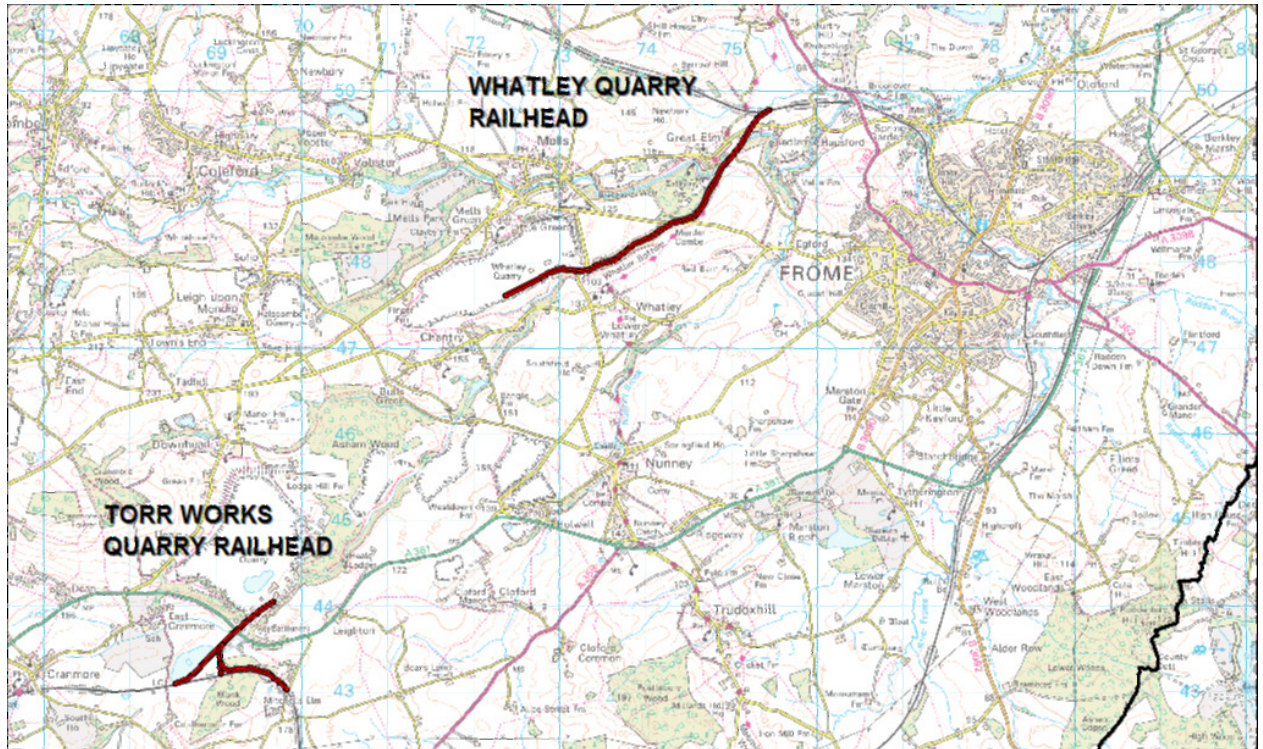
- 4.1 There are advantages to transporting aggregates by rail instead of by road. It is thought that transporting aggregates can produce up to 40% of the carbon<sup>13</sup> produced by the aggregate production industry as a whole, increasing the rail transportation reduces the number of road trips made and reduces carbon production. There are also several social benefits to limiting the number of vehicles on the road, including traffic congestion, damage to minor roads and exhaust pollution amongst others.
- 4.2 The viability of using rail for the transportation of aggregates is largely dependent on the existing rail infrastructure. Somerset currently has two railheads, one at Whatley Quarry and the other at Torr Works. Approximately 50% of Somerset's crushed rock is transported from these railheads, serving markets in London, the South East and the South West of England.
- 4.3 Mendip Rail Limited (MRL) is a joint venture company between Aggregate Industries UK Limited and Hanson Quarry Products Europe Limited and is responsible for rail logistics from Somerset's rail-linked quarries to market destinations. It operates 24 hours per day, 6.5 days per week. Quarry operators responsible for loading operations.
- 4.4 Loading operations are adjusted to suit market demands and service requirements, and currently take place 18 hours per day, 240 week days plus Saturdays as required. It is estimated that this provides for a combined capacity for the railheads at Torr Works and Whatley Quarry of approximately 6.5 million tonnes per annum. With extending hours of loading operations, this could be increased to 10 million tonnes per annum. However, in recent years, the actual amount of material moved by rail has been less, indicating there is capacity to increase the amount moved by rail subject to the demands of the market.
- 4.4 Whilst it is reasonable to assume that both Whatley and Torr Works maximise rail usage because rail transport is more sustainable and cost effective, the Somerset Minerals Plan can be used to support the transport of minerals by means other than road.
- 4.5 The majority of aggregates exported by rail serve markets in the south east, whilst aggregates transported by road are often more locally distributed within the south west. The main railheads which have a direct link to the Mendip quarries are located in London, Berkshire, West Sussex and Hampshire. Aggregates transported into these railheads are then either transported to neighbouring MPA areas or

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<sup>13</sup> Mankelow, J et al. (2010): Assessing the Carbon Footprint of Transporting Primary Aggregates

consumed within the importing MPA. There are also other smaller rail depots connected to the Mendip Hills which import less significant amounts of crushed rock.

**Figure 5: Railheads in Somerset**



## Wharves

- 4.7 There are currently two wharves in Somerset – Dunball wharf and Combwich wharf – both located to the north of Bridgwater. Combwich wharf does not currently import or export aggregates into the county; however, there is the potential for the wharf to play a role in the Hinkley Point C development.
- 4.8 Dunball wharf is the only active landing bay for marine-dredged sand and gravel in Somerset. It is noted that the River Severn is tidal and the capacity of Dunball wharf is largely dependent on how many landings can take place within the appropriate tidal range. Landings at Dunball wharf make a significant contribution (roughly 10%) to the supply of sand and gravel in Somerset.
- 4.9 Dunball wharf is located just off junction 23 of the M5 which means it has good access to the strategic road network, thus helping it to serve markets across the county.

## **Road Network**

- 4.10 The majority of minerals extracted in Somerset are from the Mendip Hills. The aggregate quarries are well served by the major road network running through Somerset. The major roads provide adequate capacity for mineral transportation. The M5 motorway creates a major transport corridor running north to south and the A303 provides eastward connectivity towards London, the A361 is the main route running through the Mendip Hills and is the main haulage route connecting the large quarries to the A39 and M5 and the A36 to Wiltshire and the south.
- 4.11 Having noted the capacity of the major road network, it is also important to note the constraints associated with the local roads in the eastern area of the county. Appropriate mitigation measures are needed to ensure mineral transport has the least amount of impact on the local area as possible, thus reducing the adverse impact of heavy lorry movements on local communities. The number of public complaints received relating to mineral transport can be used a relevant indicator, monitored as part of the preparation of the County Council's Monitoring Report which informs the Minerals and Waste Local Development Framework.

## **5 Alternative Aggregates**

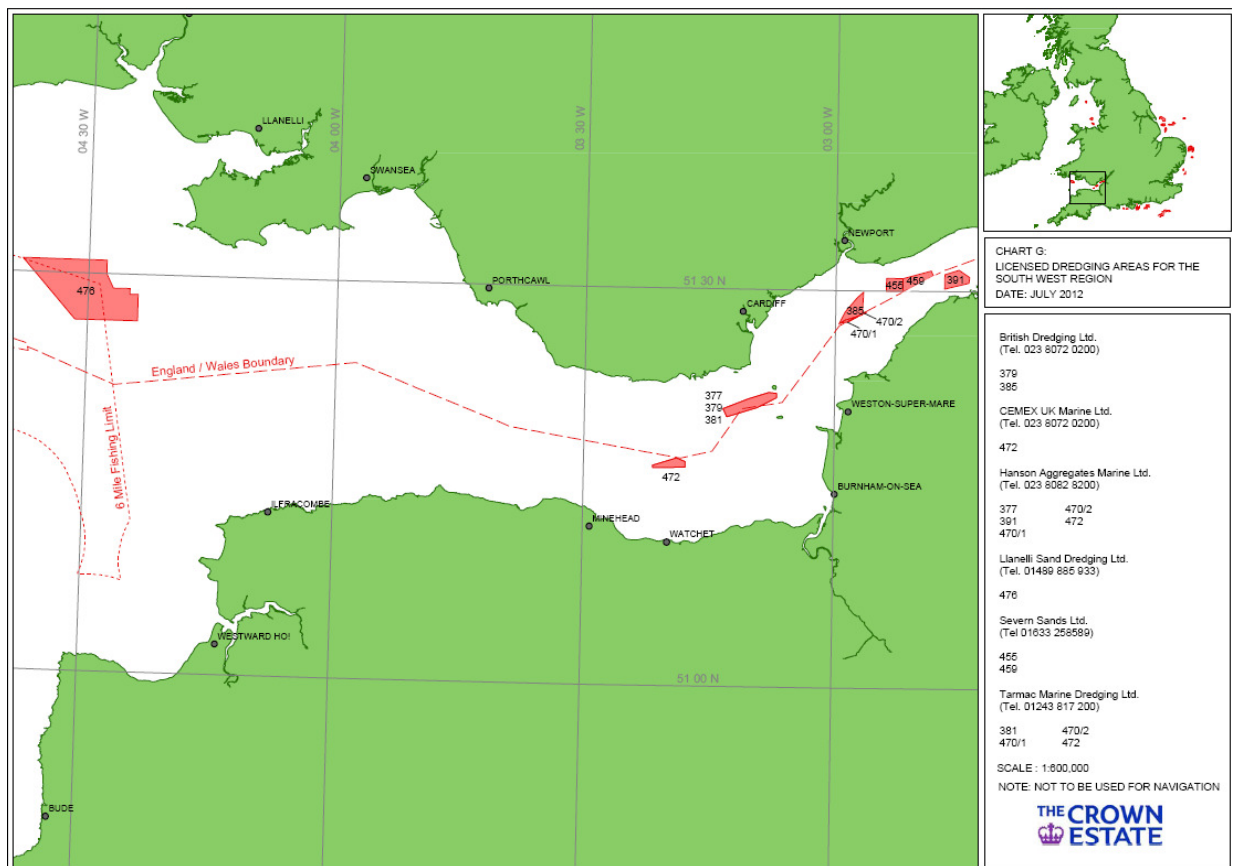
### **Marine Dredged Sand and Gravel**

- 5.1 Marine-dredged sand and gravel originating from the Bristol Channel is landed at Dunball Wharf and 98% of the sand and gravel landed is used in Somerset.
- 5.2 Dunball wharf is run by a single operator. Therefore, the sales figures are confidential and cannot be released; however, the annual quantities are in the region of 50,000 tonnes per annum, equating to roughly 10% of Somerset's sand and gravel consumption.
- 5.3 Noting the above, the county is a net importer of the marine-dredged sand and gravel. Landings at Dunball provide 43% of Somerset's marine-dredged sand and gravel consumption; the remainder originates from Hampshire [53%] and Bristol [4%].
- 5.4 Dredging for marine aggregates is licensed by the Crown Estate. The Crown Estate currently licenses an area of 123.57km<sup>2</sup> within the Bristol Channel.<sup>14</sup> There is currently a significant difference between the licensed and actual dredging amount. The total area available to be dredged in 2011 was 38.08 km<sup>2</sup> and the total area actually dredged that year was 7.5km<sup>2</sup>. If landings and tide allows there is potential to dredge more material.
- 5.5 The dredging of water courses may help to provide limited quantities of material on a very small scale, in particular linked with identified "pinch points" where the removal of the material would help in local water level management and flood risk mitigation.

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<sup>14</sup> The Crown Estate: Marine Aggregate Dredgings: The area involved – 14<sup>th</sup> annual report

**Figure 6: Marine dredging license area in South West England**



## Secondary Aggregates

- 5.6 Recycled and secondary aggregates form another potential alternative source of aggregates. In the UK the production of such alternatives has been encouraged by the introduction of the Aggregates Levy, which is applied to primary aggregates unless specifically exempt.
- 5.7 Quoting from a government budget report: *“There was a marked increase in the volume of china clay waste and slate waste sold as aggregate as a result of the economic incentive presented by the aggregates levy exemptions granted to these products. Between 2001 and 2004 china clay waste sold as aggregate in the UK increased by 14 per cent to 2.5 million tonnes.”*<sup>15</sup>
- 5.8 Secondary aggregates are usually obtained as a by-product of quarrying (for example, china clay waste, slate waste and colliery spoil) or industrial activities (for example, blast furnace slag and incinerator ash).
- 5.9 The waste arising from construction, demolition and excavation (CD&E) comprises a range of material, of which the ‘hard’ inert elements (such as concrete, bricks, stone, road planings, rail ballasts and glass) can be recycled for use as aggregates.
- 5.10 Table 7 (below) includes estimates of recycled and secondary aggregate sales in Somerset, informed by surveys carried out by Somerset County Council.

**Table 7: Recycled and secondary aggregate production 2002-2011**

Year	Recycled Aggregate Sales from sites with fixed plant (tonnes)	Secondary Aggregate Sales (tonnes)
2002	No data	No data
2003	13,977	38,997
2004	14,910	39,910
2005	14,131	40,666
2006	34,015	42,752
2007	21,162	55,474
2008	15,137	56,786
2009	25,045	116,222
2010	26,323	128,699
2011	34,059	27,955

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<sup>15</sup> HM Treasury, Budget 2005 – Investing in our Future (HC 372), March 2005

- 5.10 There are challenges to collating accurate data on recycled and secondary aggregate generation. For example, some quarry operators record scalpings and other secondary materials in their data on primary aggregates; furthermore, inert waste can be recycled on-site via mobile crushing plant rather than fixed facilities, thus making data collection more difficult.
- 5.11 There are a number of permitted recycling aggregate facilities in Somerset, located in former quarries or waste transfer stations. Furthermore, operational quarries and other development sites can also generate recycled aggregate e.g. via the use of on-site crushers.
- 5.12 The recycled aggregate data shown in Table 7 are based on estimated averages from a small number of operators of sites with fixed plant for producing such material.
- 5.13 Much depends on the quality and consistency of data provided by industry. The significant drop in secondary aggregate production shown in 2011 is considered to be a result of differing interpretations of data, with the 2011 figure benefiting from feedback from industry as part of revising the LAA. Through continued engagement Somerset County Council will continue to improve its records and monitor the impact of its policies in support of recycled and secondary aggregate production.
- 5.14 There are minimal import and export data for recycled and secondary aggregates in Somerset. There is likely to be a limited amount of cross-border transfer of material, but it is considered to be small with the bulk of material supplying local markets.

## 6 Future Aggregate Supply

- 6.1 As previously mentioned the approach taken by the Managed Aggregate Supply System (MASS) has changed since the introduction of the Localism Act 2011, the NPPF and related planning guidance. Aggregate supply is now informed by locally-derived figure for provision, calculated based on a rolling average of sales over a ten-year period and other relevant local information.
- 6.2 Central government will continue to provide National and Sub-National Guidelines, thereby providing an indication of the total amount of aggregate provision that MPAs collectively within each Aggregate Working Party (AWP) should aim to provide. These guidelines will only act as a broader indicator and MPAs should plan appropriately for their own provision as stated above.
- 6.3 One mechanism introduced to allow MPAs to consider more local factors is the scope to look at the average 3 year sales data, which enables MPAs to consider if an upturn in recent sales could indicate a need to plan for increase supply. To help calculate this figure, Table 9 shows the crushed rock sales figures in million tonnes over the 10 year period from 2002 – 2011.

**Table 8: Crushed Rock Sales 2002-2011 (million tonnes)**

<b>Year</b>	<b>Sales</b>
2002	11.34
2003	11.67
2004	9.81
2005	11.22
2006	11.9
2007	12.38
2008	10.46
2009	9.71
2010	9.62
2011	10.05

- 6.4 The average sales of crushed rock in Somerset over the last 10 years is 10.81 million tonnes. The average sales of crushed rock in Somerset over the last 3 years are 9.79 million tonnes. The average sales from the ten year period are seen as a more appropriate figure to take because the figure is based on a period of time where both economic prosperity and austerity has occurred. The average from the previous 3 years only reflects a period of low economic growth where sales figures are particularly low and given the 2011 sales figure shows signs of potential growth the previous 3 year average may be a little restrictive.

## Demand from major infrastructure

- 6.5 An additional factor to be considered in projecting future demand is the demand for material linked with major infrastructure investment. Guidance on the Managed Aggregate Supply System refers in particular to the National Infrastructure Plan.
- 6.6 The main project in Somerset identified in the Infrastructure Delivery Update (March 2013) refers to Hinkley Point C: *“The Secretary of State for the Department of Energy and Climate Change (DECC) received recommendation from the Planning Inspectorate on EDF’s application for development consent for the Hinkley Point C new nuclear power station in December 2012. A final decision to approve planning permission was made in March 2013”*.<sup>16</sup>
- 6.7 The Freight Management Strategy in EDF Energy’s Transport Assessment states estimates that 7.1 million tonnes of material will be transported to/from the Hinkley Point C project sites during the construction phase. This total includes construction materials, waste and materials generated by the removal of some of the associated development facilities at the end of the HPC construction phase. The main civil works will require approximately 2.3 million tonnes of concrete, 80% of which will be supplied by jetty and 20 % by road.<sup>17</sup>
- 6.8 Aggregate supply for this project is informed by a large range of factors and is market-driven, governed by EDF Energy’s procurement strategy and arrangements agreed when the Development Consent Order was granted. The role of Mendip’s crushed rock resource in contributing to this supply will depend on the contracts agreed and related logistics.<sup>18</sup> Transport of materials is a particularly key issue, acknowledging the importance of mitigating impacts on the road network.
- 6.9 Other major construction projects outside Somerset are also likely to require crushed rock produced in Somerset, acknowledging the county’s nationally significant role crushed rock resource. Annual updating of the Somerset LAA will help to provide a mechanism enabling minerals planning in Somerset to monitor the supply system and respond as appropriate (also including any implications on the railheads used to supply markets in the South East).

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[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/204634/infrastructure\\_delivery\\_update\\_200313\\_1\\_.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/204634/infrastructure_delivery_update_200313_1_.pdf)

<sup>17</sup> EDF Energy, Transport Assessment Appendix 3.7 – Freight Management Strategy October 2011, page 47

<sup>18</sup> Assuming 5 million tonnes of crushed rock is needed for HPC and associated developments, and all of this is supplied from Somerset, when averaged over 10 years would add an additional 500,000 tonnes per year to the demand. Adding this to 10 year average sales gives a revised figure of 11.3 million tonnes. At this slightly elevated rate of depletion, Somerset’s current landbank would still have approximately 40 years remaining and so is able to accommodate this theoretical additional demand

## Meeting projected demand

- 6.10 If the active crushed rock sites in Somerset were to extract at their maximum permitted annual output rate, the resulting depletion of resources may result in additional reserves being needed during the second half of the plan period. However, actual annual output is significantly less than maximum permitted figures and so current reserves should last well beyond 2030. There are no locally significant reasons why the level of provision based on the average sales of crushed rock in Somerset over the last 10 years cannot be achieved.
- 6.11 Only one planning permission is due to expire within the plan period, Halecombe quarry, which has a permitted output of 1.0 mt per annum; and permission until 2023. There is, however, a possibility to deepen this site and an application may come forward in the near future.
- 6.12 If the sales figures show a continued decline or a rapid increase over a particular period in the future then the sub-regional apportionment and/or the 3 year average sales data may have a more significant weighting to ensure local demand is provided for, but at present there is no reason to not take account of the provision afforded by the average 10 year sales figure.
- 6.13 As previously mentioned the landbank is the permitted reserve, divided by the level of provision giving the number of years production can continue at its current rate. Table 10 shows the existing landbank based upon the sub-regional apportionment and the proposed landbank based on the average sales figures.

**Table 9: Comparing calculations on provision**

Landbank and sub-regional apportionment		Landbank and 10 year average sales		Landbank and 3 year average sales	
Permitted reserve	451Mt	Permitted reserve	451Mt	Permitted reserve	451 Mt
Sub-regional apportionment	13.4Mt	10 year average sales	10.81Mt	3 year average sales	9.79Mt
Estimated time remaining	33.7 years	Estimated time remaining	41.72 years	Estimated time remaining	46.06 years

- 6.14 The NPPF seeks the maintenance of a landbank for at least 10 years for crushed rock. As Table 10 shows the landbank for all scenarios is significantly above the 10 year requirement.

## **Sand and gravel**

- 6.15 As previously mentioned the provision for Somerset's sand and gravel is based on a joint approach with Devon County Council. Somerset does not have a separate landbank for sand and gravel; it is included with that of Devon's. Devon's sand and gravel landbank is 15 years, exceeding the 7 years as required by the NPPF.

## **Marine-dredged Aggregates**

- 6.16 Marine-dredged sand and gravel is a significant contributor to consumption of sand and gravel in Somerset. The comparison of actual and licensed dredging rates would suggest there is scope to increase the level of dredging in the Bristol Channel if necessary. However, indications are that Dunball Wharf is currently working close to its operational maximum capacity, when taking into account weather and tides, thus affecting the potential to increase the county's dependence on marine-dredged aggregates.

## **Recycled and Secondary Aggregates**

- 6.17 National planning policy indicates mineral planning authorities preparing local plans 'should so far as practicable, take account of the contribution that substitute of secondary and recycled materials and minerals waste would make to the supply of materials, before considering extraction of primary materials, whilst aiming to source minerals supplies indigenously'.
- 6.18 Section 5 of this LAA outlines the current position on recycled and secondary aggregate production in Somerset. Economic drivers would suggest that quarry operators are working at a practicable capacity, selling the largest proportion of their mineral waste as possible. The Somerset Minerals Plan should provide further support for production of recycled and secondary aggregates from quarry operations.
- 6.19 Sales figures suggest the proportion of construction, demolition and excavation waste recycled for aggregate use has steadily increased over the previous 10 years, resulting in more sustainable waste management. Again, the Somerset Minerals Plan has a role to play in supporting future production, in conjunction with the Somerset Waste Core Strategy (adopted 2013).
- 6.20 Production of recycled and secondary aggregates help to ensure that best use is made of primary aggregates, protecting future supply and reducing the amount of waste sent to landfill.

## Future Production

- 6.21 Table 11 provides a comparison with the average annual production for each aggregate source, together with the estimated capacity for that source, indicating whether there is potential for the increased production should the be required.

**Table 10: Comparison of Average Annual Sales and Capacity**

<b>Aggregate Type / Source</b>	<b>Average Annual Sales / Production (tonnes)</b>	<b>Potential Capacity (tonnes)</b>	<b>Balance (tonnes)</b>
Crushed rock	10.81 million	20.31 million*	+ 9.5 million
Marine-dredged	50,000**	50,000**	0
Secondary	60,829**	128,699***	+ 67,870
Recycled	19,735	34,059***	+ 14,324

\* Based on permitted output

\*\* Approximation figure as actual sales are confidential

\*\*\* Estimate based on peak past production; actual capacity is thought to be more as more sites become available.

- 6.22 Table 11 indicates there is the capacity for a significant increase in the production of crushed rock, the significant imbalance is a reflection of the economic position of the UK and it is expected the average sales will increase as the UK construction economy improves.
- 6.23 Table 11 also recognises there is the capacity for an increase in the production of recycled aggregates; however, over recent years the sales have been increasing towards capacity and past sales data may be negatively affecting the sales average. More work needs to be undertaken to obtain more accurate sales figures.
- 6.24 It is recognised Dunball Wharf is operating at near maximum capacity, however. The marine dredged licenses suggest there is the potential to increase the capacity of marine dredging should anymore landing sites become available.

## 7 Conclusions

- 7.1 The LAA has identified that Exmoor National Park does not currently produce any aggregate and is reliant on imports from the surrounding Mineral Planning Authorities. Given National Park purposes and the geology of the MPA area, it is likely that no significant levels of aggregate will be worked in Exmoor in the foreseeable future. It is therefore considered appropriate to continue the joint approach in maintaining a shared approach to provision based on this LAA.
- 7.2 The Somerset Minerals Plan period will run until 2030. Somerset's first LAA recognises that Somerset has sufficient permitted reserves to ensure a steady and adequate crushed rock landbank is maintained for this period. The annual figure for provision derived from the Somerset LAA based on the 10 year rolling average is 10.81 million tonnes per year. The landbank derived from this level of provision is 41.7 years.
- 7.3 The current aggregate landbank is well in excess of that needed to comply with national policy. This is not surprising, acknowledging the widespread demand for Somerset's crushed rock resource.
- 7.4 Going forward, it will be important to monitor the aggregate supply system in Somerset with the help of the Somerset LAA and other monitoring activity, embedding this within local planning as a tool to maintain steady and adequate supply of crushed rock. The Somerset Minerals Plan will set the planning policy framework to ensure that any potential shortfalls in minerals supply are identified – via the LAA – enabling appropriate action to be taken.
- 7.5 Focusing on sand and gravel, historically Somerset has shared a joint apportionment with Devon and Cornwall. Somerset does not have its own separate landbank for sand and gravel but relies in particular on the working of the Budleigh Salterton Pebble Bed resources that cross the Somerset / Devon border. There has been minimal extraction activity in Somerset during the last 10 years. Sand and gravel have been worked just over the Devon border, with the extracted material processed in Somerset. Set in this context, the Somerset Minerals Plan must deliver policy to reflect and support co-operation between Somerset County Council and Devon County Council in a joint approach to maintain an adequate and steady supply of sand and gravel, noting also that extraction may be proposed on the Somerset side of the border during the plan period. Changes in sand and gravel supply can be monitored via the LAA in future years.
- 7.6 Thus, the LAA provides a valuable source of data to inform the development and monitor the delivery of local planning policy, helping to ensure that relevant objectives are achieved. In addition to issues of primary aggregate supply and demand, the LAA will be an invaluable tool in monitoring issues the production of recycled and secondary aggregates and the transport of minerals via rail.